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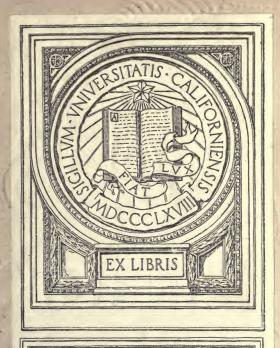












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UTAH.

BY H. W. B. KANTNER.

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Introductory.

For the first time in the history of mining in Utah an effort is here made to compile and present to those interested, at home and abroad, a comprehensive insight to the actual condition of mining affairs in this state. A vast amount of history is left unwritten, and only those points and details touched upon that are worthy, in every sense, of particular note. If it be but the one feature of the work it can be truthfully said that it is honest, without the least intentional varnish or misrepresentation. Naturally there will be omissions; these must inevitably follow in the inauguration of a work like this, which has nothing of the kind preceding it to lean upon as a basis for correction and elaboration, but all reasonable efforts have been made to be just and accurate.

A Valuable Publication.

A New Periodical Entitled "Industries" to be Issued in Salt Lake.

"Industries," is the title of a new publication soon to be issued in Salt Lake. It will discuss all the most important industries in the States west of the Missouri River, but especially those of Utah, Idaho, Montana, Wyoming, Washington, Oregon, California, Nevada, Arizona and Colorado.

Finance, real estate, banks and banking, mining, irrigation, agriculture, horticulture, smelting and milling, railroading, manufacturing, stockraising, merchandizing and the trades and all the chief industries of this vast region will be carefully looked after, and brief but complete data given as to actual conditions.

To the business man in any line of trade or speculation this journal will be quite indispensible. The new publication will be issued by an incorporated company. There will be no less than fifteen assistant editors, and over one hundred correspondents on the staff of writers.

A complete stock table embracing the listed mining companies in the United States, and showing the total transactions, will be a feature.

It will contain a regular epitome of the total business done in the mercantile and manufacturing and commercial lines.

The total tonnage and values of the ores treated by the smelters, samplers and mills will be given in each issue, as also the total output of the mines, and the destination of ores and bullion.

A review of irrigation and land promotion propositions throughout the West promises to be one of the particular considerations of the new journal.

The sugar, salt and mineral water industries

will receive full attention.

The live stock business in its every phase, from grazing to the butchers block, will be covered completely.

The coal, coke, gas and iron industries will be

cited in detail.

All there is to, in and of railroading, including the freight and passenger traffic, and the many

incidents and personals will be detailed.

In brief, everything worthy of note transpiring under the heads mentioned will be collated and published, making "Industries" an invaluable journal for every business man in the Trans-Missouri region, and it will be the first and only publication of its kind, so long needed in the West.

Arrangements are now perfecting to issue the first number on or about November 1, 1896. Owing to the great area to be covered, all parts of which is equally interested, an edition of at least 50,000 copies will be necessary for its formal introduction. It will necessarily be the most widely circulated publication west of Chicago and St. Louis, and its value as an advertising medium will be at once apparent.

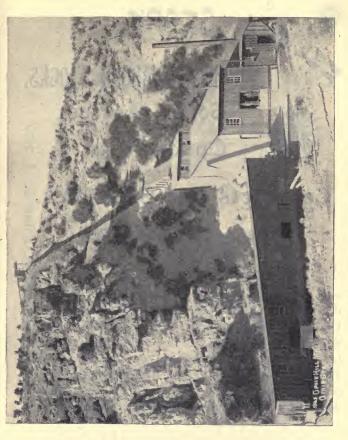
A corps of agents is now covering each state gathering data and engaging correspondents who will submit their copy to the various state editors, who in turn send in "copy" for final disposition at the home office in Salt Lake.

Editors, business men and all others interested in the up-building of the country west of the Big Muddy, will find it advantageous to communicate with the home office. A correspondent is wanted in every county, and every city of over 3,000 inhabitants in the states mentioned, to whom full and satisfactory remuneration will be given for all acceptable matter furnished.

The subscription price of "Industries" will be \$2 a year, invariably in advance. It will be a 20-page journal, printed on fine calendared paper with elaborate cover. It will contain fine half-tone or photo-graveur illustrations of every important subject treated upon, where such will add to or make it more complete and explicit. No expense, brains or arterial blood will be spared to make "Industries" one of the very finest and most valuable publications in America, and certainly the only one of its kind extant. Address all communications to

"INDUSTRIES,"
Salt Lake City, Utah.

H. M. Cushing and others have struck a rich vein of ore on Antelope Island, and are satisfied they have one of the richest strikes ever made in Utah. A smelter run made on the 10th of September, 1896, showed the ore to be very rich, but the values were not given out for publication. This means the opening and development of a new district, and Antelope Island will be much in evidence in mining circles before many months.





Contracts and Securities.

No. 2 Atlas Block, Salt Lake City.

H. M. Cushing and others have struck a rich vein of ore on Antelope Island, and are satisfied they have one of the richest strikes ever made in Utah. A smelter run made on the 10th of September, 1896, showed the ore to be very rich, but the values were not given out for publication. This means the opening and development of a new district, and Antelope Island will be much in evidence in mining circles before many months.

Mining Corporations of Utah.

| NAME OF COMPANY. | PRINCIPAL PLACE OF BUSINESS. | LOCATION OF MINE. | DATE OF IN- CAPITAL CORPORATION. STOCK, | CAPITAL STOCK. | NO. OF SHARES | PAR |
|------------------------------|------------------------------|-------------------------------|---|----------------|------------------|--------|
| Anglo Idaho Mining Co, | Salt Lake City | Little Wood River, Idaho | July 6, 1887 | \$ 1,000000. | 100000 | \$ 10. |
| Aladdin G. & S. Mining Co. | Chicago, Ill. | Bingham | | 200000, | 4000 | 20. |
| Americus S. M. Co. | N. Y. City | Beaver | May 10, 1884 | 2,0000000 | 200000 | 10. |
| Angel M. Co. | Salt Lake City | Piute Co. | Dec. 15, 1888 | 125000. | 25000 | ŭ |
| Apex M. Co. | " " | | June 22, 1881 | 1,125000, | 125000 | 10. |
| American Antimony Co. | 19 99 99 | | Feb, 21, 1881 | 2,0000000. | 200000 | 10, |
| Alliance M. Co. | 99 99 99 | Park City | Feb. 14, 1889 | 100000 | 100000 | Τ, |
| Alexander | 27 27 27 | Sanpete Co. | Aug. 23, 1888 | 45000. | 0006 | 20 |
| Alterus G. & S. M. Co. | " " " | Idaho | March 1, 1880 | 2,500000. | 100000 | 25. |
| Alta M. & Smelting Co. | 11 11 11 | Detroit District | Feb. 10, 1888 | 150000. | 1500 | 100. |
| Alpine M. Co. | Ogden | Beaver | Mar. 14, 1885 | 1,000000. | 200 100 | 2. |
| American Eagle M. Co. | Salt Lake City | Tintic | June 37, 1883 | 1,000000. | 100000 | 10. |
| American Mining Co. | 11 11 11 | | Mar. 19, 1887 | 500000. | 100000 | 70 |
| American Fork Con. G. & S. | | | | | | |
| Mining Co. | American Fork | | April 28, 1882 | 2,50000). | 250000 | 10. |
| Anchor M. Co. | Park City | | Mar, 25, 1885 | 1,000000. | 100000 | 10. |
| Albion M. Co. | Salt Lake City | Big Cottonwood | Feb, 14, 1883 | 500000 | 100000 | ıç. |
| Allee G. & S. Mining Co. | 19 19 39 | Butte | Mar. 7, 1880 | 10,000000. | 400000 | 25. |
| Albion M. Co. | " " " | Nevada and Utah Dec. 16, 1889 | 1Dec. 16, 1889 | 2,0000000 | 200000 | 10. |
| Atlas M. Co. | 77 17 17 | | July 28, 1881 | 2,500000. | 250000 | 10. |
| Alamo M. Co. | 33 33 33 | | July 28, 1890 | 625000. | 125000 | 10 |
| Australian Russell Proc. Co. | " | | Oct. 30, 1890 | 250000. | 2500 | 100 |
| American M. & Delp. Co. | : | | Jan. 4, 1891 | 100000 | 20000 | 10 |
| | | | | | | |

MINES, MINERS AND MINERALS OF UTAH.

| | | | T, | MI | NE | 0, | 1/ | 111 | NE | K: | 5 . | AN | עו | IV | LIL | I L | K | 1 L | 5 | O. | H | U. | A | н. | | | | |
|-------------|---------------------|---------------|--------------|-----------------|---------------|---------------|----------------|---------------|----------------|--------------|--------------|---------------------------------|---------------|----------------|----------------|----------------|--------------|----------------|---------------|---------------|--------------|----------------|---|---------------|---------------|------------------------------------|---------------|---------------|
| PAR | VALUE | 25 | တ် | 2. | 25 | 1 | , 0 | 1: | 1: | 1: | 1, | 1 | 10. | 1. | -1 | 1 | 1. | 1: | 2. | 1. | 1. | 50 | | 10. | 100. | 100. | 20. | 25. |
| NO. OF | SHARES | 200000 | 300000 | 100000 | 200000 | 2,000000 | 200000 | 1.000000 | 200000 | 200000 | 100000 | 100000 | 300000 | 1,250000 | 250000 | 150000 | 250000 | 200000 | 400000 | 300000 | 750000 | 200000 | | 100000 | 100000 | 100000 | 300000 | 403000 |
| CAPITAL | STOCK. | 1,000000. | 900000 | 200000 | 1,0000000. | 2,0000000. | 1,0000000. | 1,000000. | 500000. | 500000. | 100000. | 100000. | 3,0000000. | 1,250000. | 250000. | 150000. | 250000. | 500000. | 800000. | 300000. | 750000. | 1,000000. | | 1,000000. | 10,000000. | 10,000000 | 6,000000. | 10,000000. |
| DATE OF IN- | CORPORATION. STOCK, | Jan. 21, 1892 | Dec. 23 1891 | Feb. 28, 1896 | Mar, 12, 1896 | Mar, 14, 1896 | May 16, 1896 | Mar. 12, 1896 | April 17, 1896 | June 8, 1892 | Oct. 7, 1892 | Mar. 1, 1894 | Oct. 20, 1894 | April 10, 1894 | Sept. 29, 1894 | Oct. 17, 1894 | Aug. 1, 1895 | Jan. 15, 1896 | Feb. 21, 1896 | Feb. 27, 1896 | Mar. 2, 1896 | Feb. 27, 1896 | | Mar. 24, 1881 | June 28, 1880 | Sept. 15, 1885 | Aug. 23, 1883 | Feb. 25, 1882 |
| LOCATION OF | MINE. | | | | | | | | | | | | | | | | | | | | | | | ka | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | Eureka | | | | |
| CE | OF BUSINESS, | 27 27 29 | " |)))))) | 39 33 33 | Ogden | Salt Lake City | 37 77 99 | 19 99 99 | Eureka | Salt Lake C | Arnett Creek G. M. & M. Co. " " | 27 27 27 | Ogden | Provo | Salt Lake City | Provo | Salt Lake City | 29 29 29 | " " | Provo | Salt Lake City | | " " Eure | " " | Bannock G. & S. M. Co. of Ida. " " | 27 27 27 | " " " |

| NAME OF COMPANY, | PRINCIPAL PLACE | LOCATION OF | CORPORATION. STOCK. | CAPITAL STOCK. | SHARES VALUI | VALUE |
|--|--------------------|-------------|---------------------|-------------------|--------------|-------|
| | | | | | | 1 |
| Baltimore M. Co. | 22 22 23 | | Dec. 7, 1882 | 5,0000000 | 200000 | 25. |
| Black Diamond G. & S. M. Co. Ogden | .Ogden | | Dec. 31, 1881 | 3,0000000. | 300000 | 10. |
| Bellevue Idaho M. Co. | Salt Lake City | | Oct, 17, 1881 | 1,250000. | 125000 | 10. |
| Brooklyn Lead M. Co. | N. Y. City | | April 11, 1883 | 240000. | 24000 | 10. |
| Big Camas G. M. Co. | Salt Lake City | | Mar. 16, 1887 | 2,500000. | 100000 | 25. |
| Boston Tintic M. Co. | | | April 17, 1885 | 750000. | 150000 | ď. |
| Boss M. Co. | Park City | | July 15, 1886 | 1,500000. | 150000 | 10. |
| Barry Con. M. Co. | Salt Lake City | | Oct. 13, 1883 | 2,500000. | 250:00 | 10. |
| Bingham M. Co. | 11 11 11 | | April 26, 1888 | 20000. | 200 | 100 |
| Black Diamond M. Co. | Park City | | Mar. 22, 1887 | 5000000 | 100000 | ů, |
| Bullion Beck & Cal, M. Co. San Francisco, C. | San Francisco, C. | | Mar. 11, 1887 | 10,00)000. | 100000 | 100. |
| Baltimore & Victoria M. Co. Salt Lake City | Salt Lake City | | Nov. 28, 1883 | 1,500000. | 120000 | 10, |
| Big Hole Placer M. Co. | 11 11 11 | | Sept. 24, 1885 | 25000. | 1000 | 25. |
| Blair M. Co. | Logan | | Nov. 14, 1891 | 500000. | 200000 | i. |
| Beyans M. Co. | 77 | | Nov. 5, 1891 | 360000. | 360000 | 1, |
| Boss Tweed M. Co. | Salt Lake City | | Aug. 17, 1892 | 1,000000. | 200000 | Ď, |
| Barnes Sulphur Co. | 22 21 11 | | April 2, 1889 | 1,000000. | 100000 | 10, |
| Bountiful G. & S. M. & M. Co. | 11 11 11 | | Dec. 11, 1891 | 1,000000. | 1,000000 | 1, |
| Bald Eagle M. Co. | 17 17 11 | | July 12, 1892 | 300000 | 300000 | 1, |
| Bingham Canyon M. Co. | E. St, Louis, Ill, | | | 2,0000000. | 200000 | 10. |
| Buckeye M. Co. | Salt Lake City | | Oct. 4, 1892 | 500000. | 200000 | I, |
| Bogan S. M. Co. | Park City | | Nov, 15, 1892 | 1,250000. | 125000 | 10, |
| Blue Bird M. Co. | Salt Lake City | | Aug. 31, 1892 | 500000. | 100000 | ro, |
| Black Mountain M. & M. Co. | 11 11 11 | | Aug. 18, 1892 | 300000 | 300000 | I, |
| Bullionville M, & R. Co. | 27 27 27 | | Aug. 29, 1892 | 1,000000. | 100000 | 10. |
| Butterfield M. Co. | Bingham & S. L. C. | | April 13, 1892 | 3,000000 francs. | ancs. | |
| Biddlecome M. & M, Co. | Salt Lake City | | April 11, 1891 | 400000 | 400000 | 1, |
| | | | | | | |

| 20 | MI | NES, | MII | NER | S A | ND | MI | NE | RA | LS | OF | UI | Al | H. | | | | |
|---|---|-------------------------------------|--|--|--------------------------------|----------------------|---------------------------------|--------------------|-------------------------|---|-------------------|--|-------------------|--------------------|------------------------|------------------------|---------------------------|---------------------|
| PAR | 10. | 1. | <u>ئ</u> ە ئە | 10. | | 0, | 1°. | 100. | ri 1 | 1. 5. | - 9 | 10. | 10 | 1. | Cª · | į, | J. | 1, |
| NO. OF SHARES | 100000 100000 400000 | 400000 | 400000 | 100000 | 300000 | 200000 | 125000 | 20000 | 10000 | 200000 | 200000 | 100000 | 200000 | 1,200000 | 000009 | 200000 | 200000 | 400000 |
| CAPITAL- STOCK. | 1,000000. 500000. 4,0.0000. | 400000. | 2,0000000. | 100000. | 300000. | 1,000000. | 1.0000000 | 5,000,000. | 100000. | 1,0000000. | 200000. | 1,000,000. | 1,0000000. | 1,2,00000. | 1,200000. | 1,0000000 | 5 00000. | 400000 |
| DATE OF IN- CAPITAL CORPORATION. STOCK. | June 22, 1891 Aug. 10, 1891 Jrly 26, 1892 | Mar. 2, 1891 Aug. 14, 1890 | July 30, 1891 Sept. 11, 1890 | Feb. 3, 1894 July 25, 1894 | Feb. 20, 1893 Nov. 23, 1893 | Aug. 30, 1894 | Dec. 15, 1894 Seps. 17, 1894 | Aug. 1, 1895 | Oct. 5, 1895 | Nov. 19, 1895 Dec. 18, 1895 | Jan. 18, 1896 | Feb. 17, 1896 | Mar. 5, 1896 | Mar. 5, 1896 | Mar. 7, 1896 | Mar. 11, 1896 | Mar. 12, 1896 | Mar. 5, 1896 |
| LOCATION OF MINE. | Castle Gate | Emery Co. | Beaver Co. | | Baker Co., Ore. | Nevada | Bingham | | Stockton | Bingham | | Tintic | | | | | | |
| PRINCIPAL PLACE OF BUSINESS. | 33 33 33 33 33 33 34 35 31 | American Fork Salt Lake Oity | ogden " | Salt Lake City | 33 33 33 33 33 33 | 33 33 33 |)))))))) | 33 33 33 | |)))))))) | 77 77 77 | Joliet, III. Salt Lake City | 27 27 27 | 33 | 33 - 33 - 33 | 22 22 22 | yy yy . | " " |
| NAME OF COMPANY. | Buckhorn G, & S. M. Co. Bald Mountain M. Co. Burke M. Co. | Buffalo Bill M. Co. Busby M. Co. | Blue Jay Con. M. Co. Buffalo G. & S. M. Co. | Bruneau M. Co. Bassick G. M. & M. Co. | Bonanza G. M. Co. | Belle G. M. & M. Co. | Blue Lakes M. Co. | Bingham Tunnel Co. | Black Eagle M. & R. Co. | Bingham Copper Co. Beaver Walrus Co. | Bonanza G. M. Co. | Bullion Canyon M. Co. Bennet M. Co. | Baby McKee M. Co. | Bismarck G. M. Co. | Bee Tee G. M. & M. Co. | Buckeye G. M. & M. Co. | Brick Con. G. M. & M. Co. | Buckeye M. & M. Co. |

| | | | IVI A | TA 1 | 2.3 | , . | IAT T | 741 | EK | | 2 | N L | , , | VI I | 141 | 510 | AL | 20 | 0 | T. | 0. | LA | 11. | | | | |
|---|----------------------|---|-------------------|--------------------|---------------------------|---------------------|------------------------|----------------------|---------------------|----------------------------|------------------|----------------------------|-----------------------|-----------------|---------------------|--------------|------------------------|----------------------|-----------------|---------------------|-------------------------------|-------------------|---------------------|----------------|----------------|------------------------|---------------------|
| PAR | 1, | 1. | 1. | 2 | 1, | 4. | 10. | 10. | 100. | 10. | δ. | 100 | 20. | 25. | 100. | 10. | 10. | 10. | 5. | 100. | 100. | 10, | 100 | 10. | 25. | ໝໍ | 20. |
| NO. OF SHARES | 250000 | 1,000000 | 250000 | 200000 | 250000 | 250000 | 100000 | 150000 | 250 | 100000 | 100000 | 1000 | 120000 | 000009 | 00009 | 100000 | 2200 | 100000 | 100000 | 00009 | 20000 | 100000 | 2500 | 100000 | 200000 | 100000 | 150000 |
| CAPITAL STOCK. | 250000. | 1,000000. | 250000. | 1,000000. | 250000. | 1,000000. | 1,000000. | 1,500000. | 25000. | 1,000000. | 500000. | 100000. | 3,0000000. | 15,000000. | 6,0000000 | 1,000000. | 22000. | 1,000000. | 500000 | 6,000000. | 5,000000 | 1,000000. | 250000. | 1,000000. | 5,0000000. | 500000 | 3,000000. |
| DATE OF IN. CAPITAL CORPORATION. STOCK. | Mar. 11, 1896 | Mar. 16, 1896 | Feb. 26, 1896 | Mar. 16, 1896 | April 11, 1896 | Jan. 14, 1896 | Aug. 30, 1886 | May 4, 1889 | April 6, 1883 | Sept. 24, 1889 | Oct. 17, 1885 | July 25, 1881 | Mar. 17, 1887 | Sept. 27, 1882 | Sept. 25, 1877 | Oct. 8, 1880 | Feb. 26, 1886 | April 19, 1880 | Feb. 14, 1883 | Sept, 25, 1887 | oJune 8, 1883 | Mar. 26, 1881 | April 25, 1889 | June 4, 1884 | April 11, 1881 | May 20, 1887 | Dec. 10, 18-1 |
| LOCATION OF MINE. | | | | Camp Floyd | | Mercur | | | | | | Marysvale | | Park City | Harrisburg | | | Camp Floyd | Big Cottonwood | Harrisburg | Frisco, Beaver CoJune 8, 1883 | Park City | | Harrisburg | | | |
| PRINCIPAL PLACE OF BUSINESS, | Payson | o.Salt Lake City | 77 73 77 | " " | Lehi | Salt Lake City | 99 99 99 | Park City | St. Louis, Mo. | Salt Lake City | 27 27 27 | Rockviile, Conn. Marysvale | Salt Lake City | " | San Francisco | Ξ | 99 99 99 | New York City | Salt Lake City | San Francisco | Salt Lake City | 77 77 77 | 3 3 3 | San Francisco | Salt Lake City | " " | 79 79 99 |
| NAME OF COMPANY. | Barefoot M. & M. Co. | Brooklyn Eureka M. & M. Co.Salt Lake City | Black Bart M. Co. | Bill Nye G. M. Co. | Big Four Con. M. & M. Co. | Brickyard G. M. Co. | Clipper G. & S. M. Co. | Constellation M. Co. | Consolidated M. Co. | Chalk Creek. Coal & C. Co. | Carisa G. M. Co. | Copper Belt M. Co. | Carrie Leonard M. Co. | Crescent M. Co. | Christy M. & M. Co. | Clara M. Co. | Conklin Sampling Works | Carrie Steele M. Co. | Columbia M. Co. | Christy M. & M. Co. | Comet M. Co. | Climax Con M. Co. | Clayton M. & S. Co. | Christy M. Co. | Cariboo M. Co. | Centennial Emma M. Co. | Cosmopolitan M. Co. |

| CORPORATION. STOCK. |
|--------------------------------|
| Dec, 13, 1880 Mar. 27, 1883 |
| May 25, 1885 |
| Aug. 20, 1887 |
| NOV. 3, 1885 |
| Oct. 12, 1881 |
| |
| Dec. 9, 1892 |
| Dec. 10, 1892 |
| Jan. 10, 1893 |
| Jan. 22, 1892 |
| April 17, 1891 |
| Nov. 10, 1892 |
| July 2, 1892 |
| Aug. 25, 1892 |
| March 3, 1881 |
| Big Cottonwood May 5, 1880 |
| July 31, 1880 |
| July 14, 1891 |
| May 10, 1890 |
| Nov. 18, 1891 |
| June 19, 1882 |
| March 4, 1891 |
| July 19, 1890 |
| June 22, 1891 |
| Big Cottonwood Feb. 14, 1883 |

| AM TON CO SEC STAN | PRINCIPAL PLAC | PRINCIPAL PLACE LOCATION OF | DATE OF IN- | CAPITAL | NO. OF | PAR | |
|--------------------------------------|----------------------------|---------------------------------|----------------|-------------|----------|-------|-----|
| NAME OF COMPANI. | OF BUSINESS. | MINE. | CORPORATION. | STOCK. | SHARES | VALUE | |
| Christy M. & M. Co. | San Francisco | Harrisburg | Sept. 25, 1887 | 6,0000000 | 00009 | 100. | |
| Comet M. Co. | Salt Lake City | Frisco, Beaver Co. June 8, 1883 | June 8, 1883 | 5,000 300. | 50000 | 100. | M |
| Olimax Con. M. Co. | 33 33 33 | Park City | March 26, 1881 | 1,000000. | 100000 | 10. | IIN |
| Clayton M. & S. Co. | 99 99 99 | | July 25, 1889 | 2,500000. | 25000 | 100. | E |
| Christy M. Co. | San Francisco | Harrisburg | June 4, 1884 | 1,000000. | 100000 | 10. | s, |
| Cariboo M. Co. | Salt Lake City | | April 11, 1881 | 5,000000. | 200000 | 25. | M |
| Centinnial Emma M. Co. | " " | | May 20, 1887 | 500000. | 100000 | 5. | IIN |
| Clipper G. & S. M. Co. | 77 77 77 | | Aug. 30, 1886 | 1,000000. | 100000 | 10. | ΙE |
| Constellation M. Co. | Park City | | May 4, 1889 | 1,500000. | 150000 | 10. | RS |
| Consolidated M. Co. | St. Louis | | April 6, 1883 | 25000. | 250 | 100. | S A |
| Chalk Creek Coal & M. Co. | Salt Lake City | | Sept. 24, 1889 | 50000. | 100000 | .50c | AN |
| Carisa G. M. Co. | 11 11 11 | | Oct. 17, 1885 | 500000. | 100000 | 5. | D |
| Copper Belt M. Co. | Rockville, Conn. Marysvale | Marysvale | July 20, 1881 | 100000 | 1000 | 100. | М |
| Carrie Leonard M. Co. | Salt Lake City | | March 17, 1887 | 3,0000000. | 150000 | 20. | IN |
| Crescent M. Co. | 99 99 99 | Park City | Sept. 27, 1882 | 15,0000000. | 000009 | 25. | E |
| Christy M. & M. Co. | San Francisco | Harrisburg | Sept. 25, 1887 | 6,0000000. | 00009 | 100. | R.A |
| Clara M. Co. | Salt Lake City | | Oct, 8, 1880 | 1,000000. | 100000 | 10. | L |
| Conklin Sampling Works | " " " | | Feb. 26, 1886 | 22000. | 2200 | 10. | 5 (|
| Carrie Steele M. Co. | New York City | Camp Floyd | April 19, 1880 | 1,000000. | 100000 | 10. | OF |
| Drum Mountain M. Co. | Salt Lake City | | Nov. 12, 1894 | 1,000000. | 1,000000 | 1. | τ |
| Diamond Coal & Coke Co. | 27 27 27 | Uintah Co. Wy. | March 22, 1894 | 1,000000. | 100000 | 10. | JT |
| Dagmar Eureka M. & M. Co. | " " " | Eureka | Dec. 21, 1895 | 500000. | 100000 | 5. | Αŀ |
| Douglas M. & M. Co. | 11 11 11 | | Dec. 26, 1895 | 1,000000. | 1,000000 | -; | ł. |
| Dalton & Lark G, S, & L. M. & M. Co. | " " " | | Feb. 10, 1896 | 2,500000. | 2,500000 | ij | |
| Dexter G. M. Co. | 99 99 | | March 3, 1896 | 1,000000 | 200000 | 20 | |
| Dry Hill Con. M. & M. Co. | *9 99 99 | | March 16, 1896 | 1,000000. | 1,000000 | i | 23 |

| 44 | MINES, | MINERS | AND M | INEKALS | OF UTAH. | |
|---|---|---|---|---|--|--|
| PAR | 2 i i i i i i i i i i i i i i i i i i i | 20. | ၌ က် က က | 26. 20, 100. | 100. 10. 50. 10. | 6, 1. 10. |
| NO. OF | 100000 125000 200000 500000 600000 | 75000 150000 100000 250000 | 1,000000 500000 500000 | 100000 150000 20000 300000 | 10000 10000 1000 50000 200000 | 250000 1,00 1000 100000 100000 |
| CAPITAL STOCK. | 2,500000. 125000. 1,000000. 2,500000. 3,000000. | 1,500000, 3,000000, 1,000000, 1,25,000, | 1,000000. | 2,500000. 3,000000. 2,000000. 3,000000. | 1,000000. 1,000000. 50000. 500000. | 1,250000. 1,000000. 1,000000. |
| DATE OF IN- CAPITAL CORPORATION, STOCK, | Feb. 5, 1886 Nov. 6, 1890 Oct. 11, 1890 Jan. 28, 1891 Oct. 28, 1891 | Oct. 28, 1893 Dec. 4, 1893 Jan, 23, 1894 Oct. 20, 1880 | Dec. 28, 1892 May 2, 1892 May 29, 1892 Oct. 29, 1891 | Jan. 3, 1880 Nov. 21, 1884 Dec. 18, 1885 June 7, 1880. June 13, 1887 | May 28, 1874 Sept. 10, 1884 Oct. 20, 1885 April 19, 1882 July 18, 1885 | Oct. 20, 1880 Dec. 26, 1895 March 16, 1896 July 12, 1882 |
| LOCATION OF MINE. | Marysvale | Park City | | Park Gity Snake Greek | Tooele Co. | |
| PRINCIPAL PLACE OF BUSINESS, | Salt Lake City St. George, Utah Salt Lake City " " " " | | Heber, Utan Ogden Salt Lake City | Beaver, Utah Salt Lake City o " " " " " " | St. Louis, Mo. Salt Lake City Ephraim Chicago Salt Lake City | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |
| NAME OF COMPANY. | Darlington M. Co, Dixie M. & S. Co. Diamond Con. M. Co. Dalton G. M. & M. Co. Deseret G. & S. M. & M. Co. | Daly West M. Co. Diamond M. Co. Dora Mine Doer Creek M. Co. | Duten Canyon M. Co. Denver & Ogden M. Co. Duquesne M. & M. Co. Diamond M. Co. | December G. & S. M. Co. Bec Daly M. Co. Sal Dickert & Myers Sulphur Co." Dupont S. M. Co. "" | Deep Creek Con, M. Co. Dominion G. & S. M. Co. Descret Coal & Coke Co. Descret G. & S. M. Co. Descret Marble Co. | Deep Greek M. Co. Douglas M. & M. Jo. Dry Hill Con, M. & M Co. Emerson M. Go. |

| | | | * | · | | -5 | , | ava A | 4.1 | 311 | 0 | 4 1 | · L | 1 | 14.1 | 1 1 | | A I | 10 | U | T. | U. | ı A | 11, | | | 4 | L |
|---------------------|---------------------|---------------------------|----------------------------|----------------|--------------------------|-----------------------|------------------------|--|--------------------|--------------|----------------------------|----------------------------|-------------------------|------------------|---------------------|----------------------|-------------------|-------------------------|-------------------------|----------------|------------------|------------------|----------------------------|-----------------|--------------------|-----------------------------|----------------|--------------------|
| PAR | VALUE | ເດ | 10. | 1. | 10. | 25. | 25. | | 10. | 1. | 1. | 1. | 10. | ů. | 20. | 1. | 0 | 5, | 5. | 1. | 1. | 1. | 1. | ů | 10. | £1. | | |
| NO, OF | SHARES | 300000 | 1.00000 | 300000 | 150000 | 40000 | 100000 | | 1500 | 250000 | 300000 | 100000 | 100000 | 300000 | 150000 | 150000 | 200000 | 600000 | 600000 | 300000 | 1,000000 | 600000 | 1,000000 | 200000 | 250000 | 1,60000 | | |
| CAPITAL | STOCK. | 1,500000. | 1,0000000 | 300000. | 1,500000. | 1,000000 | 2,500000 | | 150000. | 250000. | 300000 | 100000 | 1,000000. | 1,500000. | 3,0000000. | 150000. | 1,0000000. | 3,000000. | 3,000000. | 300000 | 1,000000 | 600000 | 1,000000. | 1,000000. | 2,500000. | £1600000. | | |
| DATE OF IN. CAPITAL | CORPORATION. STOCK. | Aug. 31, 1888 | Jan. 25, 1879 | Mar. 15, 1887 | Feb. 20, 1885 | Dec. 21, 1871 | Dec. 17, 1880 | | Oct, 2, 1891 | Dec. 8, 1891 | May 29, 1896 | April 2, 1896 | Aug. 30, 1893 | Dec. 4, 1893 | Sept. 29, 1894 | Feb. 16, 1895 | Nov. 25, 1895 | Dec. 7, 1895 | Jan. 18, 1186 | Feb. 24, 1896 | Feb. 24, 1896 | Mar. 17, 1896 | Feb. 4, 1896 | June 29, 1887 | July 18, 1883 | Feb. 24, 1881 | | |
| LOCATION OF | MINE. | | American Fork | | | Cottonwood | | Cottonwood | | | | | | | Camp Floyd | | Mercur | = = = | | | | | | | | Cottonwood | | |
| PRINCIPAL PLACE | OF BUSINESS. | Salt Lake City | New York City | 49 99 99 | Salt Lake City | 99 99 99 | 20 90 00 | Ogden, Utah | Salt Lake City | 17 27 34 |), ,, ,, ,, | 31 41 31 | 39 99 99 | 27 29 50 | 31 11 11 | 11 11 11 | 37 30 33 | 11 33 11 | 11 11 11 | ., ,, | : | | Fairfield Utah Co | Salt Lake City | Chicago | London & S. L. C.Cottonwood | C. K. Gilerist | 2811y. 01 2. L. U. |
| antanoo go ans a | NAME OF COMPANI. | Enterprise G. & S. M. Co. | Excelsior S. M Co. of Utah | Eclipse M. Co. | Exchequer G. & S. M. Co. | Equitable T. & M. Co. | Elk Mountain S. M. Co. | Elizabeth Con, G & S. M. Co, Ogden, Utah | Eureka Con. M. Co. | Eagle M. Co. | Early Harvest Con.M.&M.Co. | Eureka Wolf Tone M.& M.Co. | Exchange G. M. & M. Co. | Excelsior M. Co. | Elko G. M. & M. Co. | Eagle G. M. & M. Co. | Eldorado G. M Co. | East Golden Gate M. Co. | Electric G. M. & M. Co. | Emerald M. Co. | Edison G. M. Co. | Ensign G. M. Co. | East Mercur G. M. & M. Co. | Florence M. Co. | Frisco Con, M. Co. | Flagstaff Dist, S. M. Co. | | |

MINES, MINERS AND MINERALS OF UTAH.

| 26 | MINE | s, MI | NE | RS | AN | D | MII | NE | RA | LS | O | F | JT | ΑI | Η. | | | | |
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| PAR | £2. | ್ತು | 10. | ≓ ≓ | 10. | T. 6 | ii | ů, | ÷. | 1, | - -: | 10 | 10. | 1, | 1: | 5, | i, | .0 | ro, |
| NO. OF SHARES | 150000 | 201000 | 0000009 | 600000 | 100000 | 1,000000 | 250000 | 120000 | 1,000000 | 1,000000 | 200000 | 300000 | 250000 | 200000 | 20000 | 300000 | 1,000000 | 200000 | 300000 |
| CAPITAL STOCK, | 150000. £100000. | 1,000000. | 6,0000000 | 600000. | 1,000000. | 1,000000. | 250000. | 6000000 | 1,000000. | 1,0000000. | 200000. | 1,500000. | 2,500000. | 200000 | 50000 | 1,500000. | 1,000000. | 2,500000. | 1,500003. |
| DATE OF IN. CAPITAL CORPORATION. STOCK, | July 12, 1892 Feb. 24, 1880 | Mar. 19, 1885 | Oct. 7, 1891 | Mar. 18, 1893 April 11, 1893 | Sept, 5, 1895 | Dec, 20, 1895 | Feb, 4, 1896 | March 2, 1896 | March 7, 1896 | March 16, 1896 | July 11, 1896 | Jan. 10, 1896 | Jan. 17, 1896 | Jan, 13, 1896 | Feb. 1, 1896 | Jan. 18, 1896 | Feb. 7, 1896 | Feb. 18, 1896 | Feb. 24, 1896 |
| LOCATION OF MINE, | | | | | | | | | | | | | | East | | | | | |
| H | | | | | | | | | | | | | | t the | | | | | |
| PRINCIPAL PLACE LOOF BUSINESS, | Salt Lake City London M. M. Kaighn, Atty., S. L. C.ty | Frederick & Crown Prince M. & T. Co. Salt Lake City and | Salt Lake City | 33 33 33 33 33 33 | 27 17 29 | | | Centreville, Utah | Salt Lake City | 19 99 99 | Five Mile Pass M. & M. Co. Ogden | Great Eastern G. M. & M. Co. " " | " " | " At the East | 99 99 91 | 22 22 22 |)))))))))) | Golden Treasure G. M. Co. "" | 22 22 23 |

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| MINES, | MINERS | AND | MINERALS | OF UTAH. |
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| | 10.10. | 10, | 10. 10 H 10 | 1. 10. |

| | PRINCIPAL PLACE LOCATION OF | COCATION OF | DATE OF IN. CAPITAL | CAPITAL | NO. OF | PAR |
|--------------------------|-----------------------------|-------------|---------------------|------------|--------|-------|
| NAME OF COMPANY. | OF BUSINESS. | MINE. | CORPORATION. STOCK, | STOCK. | SHARES | VALUE |
| Golden Eagle G. M. Co. | Salt Lake City | | May 9, 1896 | 400000. | 400000 | 1. |
| Gold Cun M. & M. Co. | ** 99 99 | | Feb. 27, 1896 | 1,000000. | 200000 | ຜ |
| Gladvs M. Co. | 99 99 91 | | Mar. 2, 1896 | 1,0000000. | 200000 | చ్ |
| Golden Fleece M. Co. | 77 77 71 | | Mar. 5, 1896 | 500000. | 200000 | 1 |
| Gold Demand & Virginia | nia, | | June 15, 1895 | 1,0000000. | 200000 | ıć |
| Con. M. & M. Co. | 99 99 99 5 | | | | | |
| Gottschalk G. M. Co. | 39 39 39 | | June 6, 1895 | 2,500000. | 200000 | rç. |
| Gold Bug Placer M. Co. | 27 27 27 | | Sept. 14, 1895 | 500000 | 200000 | l, |
| Golden Era M. & M Co. | 77 77 77 | | Nov. 25, 1895 | 2,0000000 | 200000 | 10. |
| Grand Central M. Co. | Provo | | July 5, 1895 | 250000, | 220000 | 1. |
| Gold Dust M. Co. | Salt Lake City | | Oct. 7, 1895 | 1,000000. | 100000 | 10. |
| Gladstone G. M. & M. Co. | 99 99 99 | | Nov. 30, 1895 | 1,500000. | 30000 | o. |
| Gold Point M, Co. | 99 99 99 | | Dec. 16, 1895 | 1,000000. | 200000 | ů. |
| Gold King M, Co. | 99 99 99 | | Jan. 3, 1896 | 2,0000000. | 400000 | 5, |
| Good Hope Placer M. Co. | 9. 19 99 | | Jan, 2, 1895 | 100000 | 100000 | Ļ |
| Golden Gate Exten. G. M. | M, | | | | | |
| Co, | 99 99 99 | | Mar. 7, 1896 | 2,0000000 | 400000 | O. |

500000 500003 200000 200000 250000 500000 000000*1 300000 1,000000 1,000000. 500000. 5000000 2,500000. 1,500000. 1,000000. ,000000,1 500000 1,000000. March 14, 1896 March 10, 1896 March 14, 1896 March 10, 1896 March 18, 1896 March 18, 1896 Nov. 18, 1895 April 7, 1896 Mar. 2, 1896

Salt Lake City

Golden Diadem M. Co. Guelph G. M. & M. Co. Golden Bar M. Co.

Gold & Silver Carbonate M.

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Salt Lake City

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Golden Opportunity M. Co.

Grant G. M. Co. Gold Bug M. Co. Gold Reserve Co.

Yellow Jacket G. M. & M. Co. Ogden

| | 4 | | | | 1 | 11 | Νİ | ÉS, | , | Μİ | NÍ | ĔR | S | Al | NI | 1 | /II | NE | ER | A 1 | LS | 0 | F | U' | ΤÁ | H. | | | | |
|--|------------------|---------------------|-------------------------|--|-------------------------|--------------------------|-----------------------|-----------------|---------------|------------------------|----------------------|------------------------|----------------|-------------------|------------------------|-------------------|------------------------|-------------------|-----------------------------|--------|-----------------------|--------------------------|----------------|------------------------------|--------|---------------------------|----------|----------------------|-----------------------|--------------------|
| | PAK | VALUE | - | 1. | 5. | T | - | 10. | 10 | 1 | ii | 10. | 5. | 10. | ï | 1 | -4 | ŭ, | 1 | | 10. | 10. | 10 | 10. | | ıĠ | | 10. | 1, | no. |
| 0.00 | NO. OF | SHARES | 800000 | 000000 | 100000 | 500000 | 100000 | 100000 | 100000 | 200000 | 1,000000 | 150000 | 200000 | 100000 | 400000 | 100000 | 300000 | 300000 | 1,000000 | | 100000 | 200000 | 500000 | 250000 | | 300000 | | 100000 | 500000 | 300000 |
| W TOWNS TO | CAPITAL | STOCK. | 800000 | 000000 | 500000. | 500000 | 100000. | 1.000000 | 1,000000 | 200000 | 1,000000. | 1,500000. | 1,000000. | 1,000000 | 400000 | 100000 | 300000 | 1,500000. | 1,000000. | | 1,000000 | 2,000000. | 2,500000 | 2.500000 | | 1,500000. | | 1,000000. | 500000. | 1,500000 |
| The state of the s | DALE OF IN- | CORPORATION, STOCK, | Anor 15 1899 | Tant for sang | Sept. 17, 1892 | Sept. 6, 1892 | Dec. 21, 1891 | Nov. 8, 1892 | May 19, 1898. | Aug. 1, 1894 | Oct. 15, 1894 | Feb. 8, 1895 | April 20, 1895 | Jan. 10, 1896 | May 9, 1896 | May 8, 1896 | June 6, 1896 | Aug. 12, 1896 | May 7, 1895 | | Jan. 3, 1890 | April 27, 1882 | Oct. 17, 1890 | April 4, 1891 | | April 17, 1891 | | April 23, 1891 | Aug. 8, 1891 | Sept. 10, 1891 |
| TO NOTATION OF | TO WELLOW OF | MINE. | | | | | | | | | | | | | 1 | I | | 7 | | | | , | | Cedar Creek, | ~ | 74 | | 4 | 7 | 0.2 |
| PRINCIPAL DE ACE | THE OF A LIANT | OF BUSINESS. | 22 22 23 | *** | | Eureka | Salt Lake City | 17 17 77 | 11 12 11 | 75 75 75 | 33 33 | 45 65 66, | 777 27 29 | 297 29 29 | 77 27 27 | . 66 66. | 77 21 13 | 99 99 99 | & S | | 49 (99 99 | N. Y. City &S. L. C. | Salt Lake City | 119 119 | | CO. " " " | | | 29 . 29 39 | Joseph, Sevier Co. |
| | NAME OF COMPANY. | | Grantsville M. & M. Co. | - 13 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 | Golden Gate M. & M. Co. | Greenleaf G. & S. M. Co. | Green Chloride M. Co. | Grizzley M. Co. | Galena Mine | Gold Dollar M.& M. Co. | Great Eastern M. Co. | Gold Point M. & M. Co. | Geyser M. Co. | Fold Queen M. Co. | Golden Eagle G. M. Co. | Gold Ridge M. Co. | Gold Stone M. & M. Co. | Gold Flint M. Co. | Goldsmith Coalbank, G. & S. | M, Co. | Gold Note M. & M. Co. | Grizzly Flat M. & M. Co. | Greely M. Co. | Gold Group Gravel & Quartz " | M. Co. | Golden Breeze M. & M. Co. | of Idaho | Gold Mountain M. Co. | Gold Belt M. & M. Co. | Golden Star M. Co. |

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| MINES, | MINERS AND | MINERALS | OF UTAH. |
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| 100, | 5. 100. 5. | 10. 25. 10. | 100. 25. 10. 10. 25. |

| NAME OF COMPANY. | PRINCIPAL PLACE OF BUSINESS. | LOCATION OF MINE. | DATE OF IN- CAPITAL CORPORATION, STOCK. | CAPITAL STOCK. | NO. OF SHARES | PAR VALUE |
|---|--|--|---|----------------|------------------|--------------|
| Gen'l Logan M. Co. Gold Blossom M. Co. | Salt Lake City American Fork, Utah | | March 7, 1892 April 11, 1892 | 1,000000. | 1,0,0000 | 1. |
| Godiva M. Co. | Salt Lake City | | Jan. 11, 1881 | 500000 | 2000 | 100. |
| Great Basin M. & S. Co. | Jersey City, N. J | Jersey City, N. J.Rush Valley Dist.Oct. 17, 1881 | Oct. 17, 1881 | 500000 | 100000 | ຳດ |
| Gold Note M. Co. | Salt Lake City | Can | March 3, 1882 | 500000 | 100000 | NG. |
| Great Basin S. & M. Co. | Hartford, Conn. | | May 29, 1879 | 2,500000. | 100000 | 25. |
| Golden Treasure M. Co. | _ | | Nov. 6, 1880 | 32000. | 32000 | 10. |
| Gemini M. Co. | 99 | | Dec. 8, 1887 | 500000. | 2000 | 100. |
| Galvanic S. M. Co. | " | Snake Creek Dist. Dec. 18, 1883 | Dec. 18, 1883 | 1,500000. | 300000 | 50. |
| | | Summit Co. | | | | |
| Gladstone M. Co. | 11 11 11 | | June 8, 1885 | 10,0000001 | 100000 | 100 |
| Golden King M. Co. | " | | May 31, 1880 | 2,000,000. | 000007 | 10. |
| Garfield M. Co. | Ogden | | July 17, 1886 | 1,0000000. | 200000 | Ď, |
| Glencoe G. & S. M. Co. | Salt Lake City | | Sept. 20, 1889 | 2,5 10000. | 100000 | 25. |
| Gold Queen M. Co. | *, ,, ,, | | Jan. 10, 1896 | 1,600000. | 100000 | 10. |
| Gold Flint M. Co. | 17 17 17 | | Aug. 11, 1896 | 1,500000. | 300000 | 5 |
| Hamlin M. Co. | Bingham | | Mar. 1, 1880 | 10,000000. | 100000 | 100. |
| Howard M. & S. Co. | Detroit. Mich. | Utah . | Sept. 24, 1879 | 500000. | 20000 | 25. |
| Hudson M. Co. | Salt Lake City | | Feb. 18, 1880 | 2,0000000 | 200000 | 10 |
| Harrisburg Hill M. Co. | Beaver, Utah | | March 26, 1880 | 2,0000000 | 200000 | 10, |
| Hawkeye M. Co. | (0) | | May 24, 1880 | 2,500000. | 100000 | 25. |
| Horace Greeley & Sacred M | | | Nov. 20, 1888 | 150000. | 150000 | 1: |
| & M. Co. | and St, Louis Mo. | | | two places | seon | |
| Havana M, Co. | Salt Lake City | | Sept. 10, 1883 | 3,000000. | 300000 | 10. |
| Hooper S. M. & M. Co | 9 99 99 | , | April 3, 1880 | 10,000000 | 100000 | 100. |

| NAME OF COMPANY. | PRINCIP OF BU | PRINCIPAL PLACE OF BUSINESS, | LOCATION OF MINÉ. | DATE OF IN- CAPITAL CORPORATION. STOCK. | CAPITAL STOCK. | NO. OF SHARES | PAR | 00 |
|--|------------------------|---------------------------------|--------------------------------|---|----------------|------------------|------|------------|
| Himalaya M. Co. Hidden Treasure M. Co. | SaltLake City Ogden | e City | | June 22, 1887 March 29, 1888 | 1,800000. | 18,000 | 10. | 1 |
| Haskell & Wills Utah M. Co.Toledo, Ohio, and | .Toledo, | Ohio, and | | Sept, 16, 1872 | 4,000000. | 40000 | 100. | VIII |
| | Salt | Salt Lake City | | | | | | N E |
| Honerine M. Co. | Portlan | Portland, Maine | | Nov. 14, 1882 | 5000000 | 250000 | 25 | 5, |
| Horn Silver M. Co. | Frisco, Utah | Jtah | | Feb. 17, 1879 | 10,0000000 | 400000 | 25. | 17 |
| Hailey Hill M. Co. | Salt I | e City | | Sept, 7, 1885 | 1,500000. | 150000 | 10. | 411 |
| Hudson Hadley M. & M. Co. | " | " | | May 1, 1891 | 1,000000. | 200000 | 0 | NE |
| Hefner Queen M. Co. | | | | May 8, 1891 | 1,0000000. | 100000 | 10. | K |
| Harrison M. Co. | 33 33 | 33 | | July 12, 1892 | 300000 | 300000 | 1, | 5 . |
| Herkimer M. Co. | | 33 | Tintie | July 6, 1892 | 5,0000000 | 1,000000 | 5. | AP |
| Henrietta M. & M. Co. | 37 33 | 39 | | Sep. 16, 1892 | 600000 | 000009 | 1. | עא |
| Humboldt M. & M. Co. | Logan | | | Jan. 2, 1893 | 6000000 | 000009 | I. | D |
| Horse Shoe M. & M. Co. | Salt Lake City | e City | | Feb. 25, 1893 | 1,200000. | 400000 | က် | 111 |
| Hiko M. & M. Co. | " | " | Lincoln Co. Nev. Nov. 15, 1893 | Nov. 15, 1893 | 10000. | 200 | 20, | NE |
| Hercules M. Co. |)))) | 9.9 | | May 31, 1894 | 500000. | 100000 | 01. | K |
| Harland M. Co. | 19 39 | 3 | | Feb. 1, 1895 | 1,500000. | 150000 | 10. | A L |
| Hecla G. M. Co. | 79 99 | " | | Jan. 29, 1896 | 5,0000000. | 250000 | 200 | 5 |
| Hot Stuff M. Co. | " | " | | Feb. 21, 1896 | 1,500000. | 300000 | 10 | OI |
| Hardscrabble G. M. & M. Co. | , " , | 33 | | Feb. 8, 1896 | 2,500000. | 500000 | ŭ. | 1 |
| Herschel G. M. Co. | | " | | Feb, 24, 1896 | 5,000000. | 1,000000 | 70 | UI |
| Horse Shoe Cyanide G. M. & M. Co. | 3 3 | 3 | | Feb. 25, 1896 | 1,0000000. | 1,000000 | T, | AH |
| Hillside G. M. Co. | 77 3, | 77 | | March 2, 1896 | 5,0000 10. | 200000 | 10. | |
| Henrietta G. M. Co. | 77 77 | " | | March 4, 1896 | 500000 | 200000 | - | |
| Horse Shoe G. & S. M. Co. | 77 77 | 11 | | March 10, 1896 | 5,0000000. | 1,000000 | ο. | |
| Herkimer M. & M. Co. | 77 | 3 | | March 2, 1896 | 1,00000 . | 200000 | 10. | |
| | | | | | | | | |

| PAR | ō. | 10. | | IN I | | | | IN : | E | RS 1 | 10. | 1. N | ri D | M 46 | 10. | 10, E | RA 02 | L | 5.0 | of i | i. | 2.50 | AI | i, | 10. | 10. | 5, | 3 |
|---|-------------------------|--------------------|--------------|-----------------|------------------|-----------------------|-------------------------------|--------------------|---------------|-----------------------------|-----------------------------|-----------------|-------------------------------------|----------------------|---------------------|---------------------|---|----------------|---------------|----------------------|--------------------------|---------------------------------------|---------------------------|---------------|-------------------------|---------------------|--|---|
| NO. OF PAR SHARES VALUE | 100000 | 100000 | 200000 | 150000 | 150000 | 250000 | 300000 | 403000 | 250000 | 40,000 | 300000 | 20000 | 150000 | 100000 | 200000 | 250000 | 100000 | | 200000 | 200000 | 20000 | 300000 | | 1,000000 | 100000 | 200000 | 100000 | |
| STOCK. | 500000 | 1,000000. | 2,000000. | 150000. | 1,500000, | 500000 | 1,500000. | 400000 | 250000, | 400000 | 3,0000000. | 50000 | 150000. | 2,5000000 | 2,0000000. | 2,500000. | 5,000000. | | 1,0000000, | 500000. | 50000, | 750000. | | 1,000000. | 1,000000. | 2,000000 | 500000. | |
| DATE OF IN. CAPITAL CORPORATION. STOCK. | Nov. 5, 1885 | Dec. 8, 1883 | Oct. 9, 1886 | Nov. 19, 1894 | Dec. 1, 1894 | Jan. 10, 1896 | Jan, 13, 1896 | Jan. 31, 1896 | Feb. 13, 1896 | Mar. 12, 1896 | Mar, 18, 1896 | Mar. 18, 1896 | July 23, 1896 | July 28, 1879 | Aug. 21, 888 | May 31, 1880 | Aug. 26, 1887 | | April 1, 1899 | July 19, 1892 | Jan. 5, 1894 | Dec. 21, 1895 | | Feb. 24, 1896 | Feb. 28, 1887 | Nov. 19, 1877 | June 3, 1882. | |
| LOCATION OF MINE, | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PRINCIPAL PLACE OF BUSINESS, | Salt Lake City | 07 39 39 | 17 77 | 33 33 33 T | New York City | Salt Lake City | 99 | " | 33 33 | 30. " " | 30, " " | 22 29 99 | o. Park City | New York City | Ogden, Utah | Salt Lake City | Council Bluffs & | Salt Lake City | 39 39 39 | 33 | | oJuab, Utah | M. | | 27 27 99 | New York City | M.Salt Lake City | |
| NAME OF COMPANY. | Idaho G. M. Co. of Utah | fron Silver M. Co. | Idaho M. Co. | Idaho G. M. Co. | Ibex M. & S. Co. | fron King M. & M. Co. | Independence G, M. & M. Co. " | Iron Cap G. M. Co. | bex G. M. Co. | Imperial Con G. M. & M. Co. | indian Creek G. M. & M. Co. | Illinois M. Co. | independent Tesora M. Co. Park City | fones Bonanza M. Co. | unction City M. Co. | lupiter M. & S. Co. | Supiter M. Co. of Utah Ty. Council Bluffs & | | lumbo G. Co. | fones M. Co. of Utah | fordan Valley Placer Co. | tuab & Levan G. M. & M. Co.Juab, Utah | Johannesburg Cyanide G. M | & M. Co. | ging of the West M. Co. | Kearsarge S. M. Co. | Kentucky Quartz G. & S. M.Salt Lake City | |

| TALL BELLS COLO COLOR DE LA SECULIA | PRINCIPAL PLACE LUCATION OF | DATE OF IN | CAPITAL | NO. OF | PAR |
|--|--------------------------------------|------------------|-----------|---------|-------|
| NAME OF COMPANI. | OF BUSINESS, MINE, | CORPORATION. | STOCK. | SHARES | VALUE |
| Kentuck M. Co. | Salt Lake City | Nov. 8, 1883 | 600000 | 300000 | 25 |
| Keystone S. M. Co. | 33 33 33 | Dec. 2, 1882 | 2,000000. | 200000 | 10. |
| Katherine M. Co. | 39 39 39 | Dec. 16, 1895 | 100000. | 100000 | 1: |
| King James M. & M. Co. | 33 33 33 | Nov. 29, 1895 | 500000. | 100000 | 52 |
| Last Chance Con. S. M. C. LdLondon, Eng. | dLondon, Eng. | Sep. 17, 1883 | £100000. | 100000 | £1. |
| Little Mack M. Co. | Salt Lake City | Sep. 3, 1887 | 1,000000. | 150000 | 10 |
| Lion Hill M. Co. | ** 99 99 | June 8, 1888 | 1,000000. | 100000 | 10. |
| Last Chance M. Co. | ** 33 33 | Jan. 30, 1888 | 50000. | 20000 | 1. |
| Leesburg M. & M. Co. | Ogden Leesburg DistrictJuly 14, 1882 | ictJuly 14, 1882 | 2,000000. | 200000 | 10. |
| | Idaho | | | | |
| Lucky Bill M. Co. | Park City | Mar. 26, 1888 | 300000. | 120000 | 2.50. |
| Leeds M. Co. | San Francisco, | Oct. 25, 1876 | 6,000000. | 00009 | 100. |
| | California; | | | | |
| Lexington M. Co. | Salt Lake City | Dec. 11, 1882 | 500000 | 100000 | 5. |
| Lead M. Co. | 99 | April 27, 1881 | 500000. | 2000 | 100 |
| Little Pittsburg M. Co. | 99 99 99 | Dec. 8, 1891 | 2,000000. | 400000 | ī, |
| Leo M. & M. Co. | >> >> >> | May 31, 1895 | 40000. | 40000 | 1. |
| Lembi G. M. Co. | 29 29 29 | Jan. 10, 1895] | 5,000000. | 200000 | 10. |
| Los Angeles G. M. Co. | 99 99 | Feb. 22, 1896 | 1,000000. | 200000 | 2. |
| Little Mercur M. Co. | " " " " " " | Feb. 29, 1896 | 500000. | 200000 | 1; |
| Leroy M. & M. Co. | ,, ,, | Jan. 29, 1896 | 350000. | 350000 | Τ: |
| Lone Star M. & M. Co. | 99 99 99 | March 6, 1896 | 200000 | 200000 | 1; |
| Lone Tree M. Co. | 3 3 3 | May 9, 1885 | 1,000000. | 10000 | 100. |
| Little Gem S. & M. Co. | St. George, Utah | June 9, 1890 | 10000. | 1000 | 10. |
| Lackawana Coal Co. | Lake C | July 31, 1890 | 25 000, | 250000 | 1. |
| Lucky Hill M. Co. | 22 22 22 | March 12, 1891 | 5000000 | 200000 | 1. |
| Lincoln M. Co. | 33 33 33 | April 1, 1892 | 1,500000 | 150,000 | 10. |

| MINES, | MINERS | AND | MINERALS | OF UTAH. |
|--------|--------|-----|----------|----------|
|--------|--------|-----|----------|----------|

| NAME OF COMPANY | PRIN | CIPA F BUS | INCIPAL PLACE OF BUSINESS. | PRINCIPAL PLACE LOCATION OF OF BUSINESS. MINE. | DATE OF IN. CAPITAL CORPORATION, STOCK, | CAPITAL STOCK. | NO. OF SHARES. | PAR. | |
|----------------------------|------|----------------|-------------------------------|--|---|----------------|-------------------|------|-------|
| | | | | | | | | | |
| Lucky Boy G. M. Co. | Lalt | Lake | Salt Lake City | | April 21, 1892 | 1,000000. | 203000 | 5. | |
| Lembi G. M. & M. Co. | 99 | 19 | | | Nov. 28, 1892 | 600000 | 300000 | 2, | 1 |
| Little Bell M. Co. | ; | # | *** | | March 30, 1893 | 3,750000. | 150000 | 25. | W11. |
| Lucky Deposit M. Co. | 3 | " | * | | May 3, 1893 | \$4200. | 420 | 10. | NE |
| Lywer Mammoth M. Co. | * | ; | ** | | July 3, 1896 | 150000. | 150000 | 1. | s, |
| Monte Cristo M. Co. | 99 | 19 | ** | | Mar. 9, 1896 | 1,0000000. | 500000 | | I |
| Morning Glory M. Co. | 1 | 3 | • • | | March 14, 1896 | 60000 | 00009 | 1. | VI 1. |
| Monarch G. & S. M. Co. | ; | 9 9 | : | | March 21, 1896 | 1,000000. | 1,000 '00 | 1. | NE |
| May Day M. & M. Co. | 3 | 9 | : | | April 8, 1896 | 100000 | 400000 | 25. | K |
| Malvern G. M. Co. | ; | ,, | : | | May 2, 1896 | 1,500000. | 0000009 | 2,50 | 5 |
| Monte Carlo G. & S M. Co. | * | 3 | : | | May 6, 1896 | 100000. | 100000 | 1. | AI |
| Mercur Sunshine G. M. & M. | 99 | 9.0 | : | | Mar, 3, 1896 | 1,250000. | 250000 | .00 | ND |
| Co. | | | | | | | | | N |
| Mercur Deep M. & M. Co. | 3 | 1 | : | | Feb. 25, 1896 | 1,000000. | 1,000000 | 1, | 111 |
| Mignon G. M. Co. | 3 | ; | 2 | | Mar. 3, 1896 | 2,0000000. | 400000 | 10 | NE |
| Mormon Chief G. M. Co. | 3 | 3 | 99 | | Mar. 5, 1896 | 1,500000. | 300000 | 5. | R. |
| Syndicate | " | : | 2 | | March 9, 1896 | 6,0000000, | 000009 | 10. | AL |
| Devel. Co. | | | | | | | | | S |
| Mercur & Park G. M. Co. | Park | Park City | | | March 7, 1896 | 600000. | 300000 | 2. | O |
| Mercur King M. Co. | Salt | Salt Lake City | City | | Jan. 8, 1896 | 1,000000. | 200000 | 50 | H. |
| Mineral Point M. Co. | Loga | Logan, Utah | ah | | Oct, 2, 1891 | 100000. | 100000 | 1. | 0.1 |
| Mount Baldy M. & M. Co. | Salt | Salt Lake City | City | | Nov. 2, 1891 | 300000 | 300000 | Ħ | A |
| Mercur Mammoth M. Co. | 1 | 3 | *** | | Jan. 27, 1896 | 550000. | 550000 | 1 | н. |
| Maccabee G. M. Co. | 3 | 3 | ** | | Feb. 10, 1896 | 300000. | 300000 | 1. | |
| Millionaire G. M. & M. Co. | 3 | 91 | | | Feb. 20, 1896 | 1,250000. | 253000 | 5, | |
| Merco G. M. & M. Co. | 3 | 3 | • | | Feb. 19, 1896 | 1,250000. | 250000 | າ | |
| Monitor G. M. & M. Co. | 1 | 3 | 1 | | Feb. 1, 1896 | 1,250000. | 250000 | ro. | 00 |

| PAR | ش | 20.01 | 100 | 10. | 6. | ï | i. | 10. | ທໍ | 1, | 10. | 1, | 1. | ŭ | ï | 1. | 10. | 10. | 20. | 25. | 25. | 5. | 10. | ņ | 5. |
|---|-------------------------|--------------------------------|--------------------|---------------------------|--------------------------|----------------|--------------------|----------------------|------------------|--------------------|--------------------------|------------------------|---------------------|--------------------|----------------------|---------------------|-----------------------|---------------|--------------------------|------------------------|-----------------------|---------------------------|-----------------|---------------|---------------|
| NO. OF PAR SHARES. VALUE. | 400000 | 10000 | 2000 | 20,000 | 200000 | 500000 | 200000 | 250000 | 10,0,0 | 300000 | 150000 | 200000 | 300000 | 150000 | 200000 | 500000 | 15:000 | 100000 | 600000 | 400000 | 200000 | 100000 | 200000 | 200000 | 100000 |
| | 2,000000. | 1,000000. | 500000 | 2,0000000 | 1,0000000. | 500000 | 500000 | 2,5000003. | 5 .0000, | 300000 | 1,500000. | 500000 | 300000 | 750000. | 500000. | 500000 | 1,500000. | 1,000000. | 3,0 10000. | 1,000000. | 5,000000. | 500000, | 2,0000000 | 1,000000. | 500000. |
| DATE OF IN. CAPITAL CORPORATION. STOCK, | Mar. 2, 1896 | Aug. 18, 1890 Aug. 20, 1890 | July 1, 1891 | May 28, 1891 | July 29, 1891 | July 25, 1891 | Sept. 24, 1891 | Oct. 24, 1891 | Sept. 12, 1894 | Feb. 16, 1895 | Feb. 27, 1892 | Mar. 12, 1892 | April 30, 1892 | June 25, 1892 | Sept. 24, 1892 | Nov. 26, 1892 | Oct. 11, 1893 | Jan. 23, 1894 | May 26, 1874 | Oct. 7, 1879 | June 4, 1891 | Feb. 18, 1885 | Dec. 24, 1881 | Sept. 7, 1881 | Oct. 24, 1881 |
| LOCATION OF MINE. | | | | | | | | | | | | | | | | | | | Big Cottonwood | Big Cottonwood | | | | | |
| PRINCIPAL PLACE OF BUSINESS. | Salt Lake City | | Salt Lake City | 9 99 99 | Salt Lake City | 37 39 39 | Morgan City | | 22 22 22 | 99 99 99 | 22 22 21 | 99 99 99 | 33 33 33 | 99 99 99 | 99 99 99 | Farmington. Ut. | Salt Lake City | 23 23 25 | San Francisco | 23 33 | Salt Lake City | *1 31 31 | 33 39 50 | 11 11 11 | 99 , 99 99 |
| NAME OF COMPANY. | Mercur Gold Belt M. Co. | Mammonth M. Co. | Mingo Smelting Co. | Mammoth No. 2 M. & M. Co. | Monte Cristo M, & M, Co. | Monarch M. Co. | Morgan City M. Co. | Montreal M. & S. Co. | Marion G. M. Co. | Mercur City M. Co. | Mohawk Queen Con. M. Co. | Mohawk Con. M. & M Co. | Muldoon M. & M. Co. | Minnie M. & M. Co. | Mountain Lake M. Co. | Mineral Hill M. Co. | Morgan G. M. & M. Co. | Miners Dream | Mineral Fork M. & S. Co. | Madelon Con. S. M. Co. | Mercur G. M. & M. Co. | Mill Creek M. M. & S. Co. | Midas G, M. Co. | Medall M. Co. | Morton M. Co. |

ů.

UTAH.

10.

| MINE. | CORPORATION. | STOCK. | SHARES | VALUE | |
|-------|----------------|------------|---------|---------|-----|
| | April 1, 1873 | 150000, | 0009 | 25. | |
| | Nov 6 1880 | 1 000000 | 100000 | 10 | М |
| | July 1, 1885 | 1.500000 | 150000 | 10. | ı N |
| | Nov. 13, 188n | 1,000000. | 100000 | 10, | ES |
| | April 29, 1887 | 750000. | 150000 | 2 | , |
| | Mar. 9, 188) | 10,000000. | 200000 | 20. | ΜI |
| | July 6, 1887 | 1,500000 | 150000 | 10. | NEI |
| | Feb. 3, 1881 | 10,000000. | 400000 | 25. | RS |
| | Aug. 3, 1883 | 3,000000. | 300000 | 10. | A |
| | | 1,800000 | 15000 | 120 | N D |
| | Sept. 1, 1876 | £150,000. | 000001 | or £10. | N |
| | . Aug. 6, 1887 | 3,000000. | 150003 | 20. | AID |
| | April 12, 1888 | 2,0000000. | 200000 | 10. | NER |
| | Feb. 5, 1887 | 500000 | 100000 | 0. | (A) |
| | May 19, 1876 | 500000 | 2,000 | 25. | LS |
| | Dec. 2, 1880 | 10,000000 | 40)000 | 25. | 0 |
| | Oct. 4, 1886 | 200000 | 2 1000 | 10. | F |
| | | | | | |

PAR

NO. OF

DATE OF IN CAPITAL

PRINCIPAL PLACE LOCATION OF

OF BUSINESS. Grand Havan, Salt Lake City

NAME OF COMPANY.

Marsac S. Mill Co. Mexican M. Co. Morgan M. Co.

99 99 Mich.

> Mineral Point Con. M. & M. Marysvale G. & S. M. Co.

Montreal S. M. Co.

| July 6, 1887 1, £00000, 150000 | Feb. 3, 1881 10,000000, 400000 | Aug. 3, 1883 3,000000. 300000 | 1,800000 | | Aug. 6, 1887 3,0000c0. 150003 | | April 12, 1888 2,000000. 200000 | Feb. 5, 1887 500000, 100000 | May 19, 1876 500000, 2,000 | Dec. 2, 1880 10,0000000, 40 1000 | Oct. 4, 1886 230003. 23000 | July 12, 1883 675000, 67500 | | March 7, 1896 500000, 503000 | Mar. 17, 1896 55,000. 550000 | Feb. 29, 1896 1,500000. 300000 | ril 30, 1896 3,000. 30000 | Jan, 15, 1896 250000. 50300 |
|--------------------------------|--------------------------------|-------------------------------|---------------------------|-------------------------------------|-------------------------------|---------------------------|---------------------------------|-----------------------------|---|----------------------------------|----------------------------|-----------------------------|---------------------------|------------------------------|------------------------------|--------------------------------|---------------------------------------|-----------------------------|
| | | nV ,, ,, | | | Salt Lake City Au | | * | Fe | | Salt Lake City De | Fillmore, Utab Oct | Ju | | City | * | * | Ogden Camp Floyd Dist. April 30, 1896 | Salt Lake City |
| Morning Star 9, M, Co. | Mammoth M. Co. | Minnie Wheeler S. M. Co | Moats Chappy tol Exploit- | alle von Zilvermynen, New Amsterdam | Massachusetts M. Co. | Montana Placer M. Co., of | Utah | Missoula Placer M. Co. | Montezuma S. M. Co.of Utah Detroit, Mich. | Moulton M. Co. | Monte del Rey M. Co. | Mountain Chief M. Co. | North Golden Gate M. & M. | Co. | North Mercur M. & M. Co. " | Nancy Hanks G. M. & M. Co. " " | Nelly Bly M. & M. Co. | New State M, & M. Co. |

| NAME OF COMPANY, | PRINCIPAL PLACE OF BUSINESS, | LOCATION OF MINE. | DATE OF IN- CORPORATION. | CAPITAL STOCK. | NO. OF SHARES | PAR | 36 |
|--|--|-------------------|--|--|--------------------------------|------------|--------|
| New Year G. M. Co. Salt I Northern Light M. & M. Co. " North Mercut G. M. & M. Co. " | Salt Lake City " " " " " " | f.a Plafa | Jan. 16, 1896 Feb. 6, 1896 Feb. 15, 1896 Feb. 8, 1896 | 1,0 00000. 2,0000 :0, 1,0000003, | 1,000000 400000 2):1000 | - 10 10 - | MINI |
| Nora Con. G. M. Co. North Star M. & M. Co. North Mercur M. & M. Co. | Salt Lake City Ogden, Utah | Camp Floyd | July 11, 1895 Mar. 13, 1896 Mar. 10, 1896 | 690000. | 20)000 20)000 1,000000 | ; »; -; -; | ES, MI |
| New Emma M. Co. North Horn Silver M. Co. | London, Eng. New York City | Frisco, Utah | Jan. 17, 1882 May 2), 1881 | £700000. | 70000 | £10 10. | NERS |
| Northern Chief M. Co. New Bedford S. M. Co. | New York City Salt Lake City | Bingham | May 8, 1880 June 18, 1880 | 2,000000, | 200000 | 10. | AND |
| Nephi Mineral Wax M. Co. Niagara M. & S. Co. North Fork G. & S. M. Co. | Nephi Salt Lake City Ogden, Utah | Willard Dist. | Aug. 15, 1888 Oct. 29, 1888 May 24, 1887 | 2,200000. 2,000000. 3,000000. | 220000 20)000 300000 | 10. 10. | MINE |
| Nuna M. Co. Northern Spy M. Co. Nephi Salt M. & M. Co. | Salt Lake City Nephi | | May 26, 1889 Nov. 20, 1889 March 11, 1890 | 50000, 1,000000. 25000, | 50000 100)00 250 | 1. 10. | RALS |
| North Eureka M. Co. New York M. & S. Co. Nelson Con. M. & M. Co. | Salt Lake City " " Ogden | | May 5, 1891 April 15, 1891 Jan, 13, 1891 | 300000. 10,000000. 1,000000. | 3000001 | 10.00 | OF U |
| Nabob M. Co. North Dalton M. Co. Nast Con. M. Co. | Salt Lake City " " " | | Aug. 8, 1893 July 14, 1891 Jan. 21, 1892 | 1,000000. 2,500000. 1,000000. | 200000 500000 1,0000000 | 10 70 H | TAH. |
| North Tintic Con, M. Co. New Tintic M. & S. Co. Nabob & Copper Chief M. Co. | 33 31 31 33 33 33 33 | | April 5, 1892 April 19, 1892 April 29, 1893 | 1,200000. | 300000 200000 | 1. 10. | |
| | | | | | | | |

| MINES, N | IINERS | AND | MINERALS | OF | UTAH. |
|----------|--------|-----|----------|----|-------|
|----------|--------|-----|----------|----|-------|

| NAME OF COMPANY. | PRINCIPAL PLACE OF BUSINESS, | LOCATION OF MINE. | DATE OF IN- CAPITAL CORPORATION. STOCK, | CAPITAL STOCK. | NO. OF SHARES | PAR | |
|--|---|--------------------------------|---|----------------|------------------|------|-----|
| Nebraska G. M. Co. | Salt Lake City | | Jan. 20, 1895 | 500000. | 25000 | 20. | |
| New State M. Co. | Provo | | July 15, 1896 | 150000. | 150000 | 1, | |
| New Guinea M. & M. Co. | Salt Lake City | | July 31, 1896 | 150000. | 150000 | 1, | MI |
| North Mountain M. Co. Old Channel Placer M. Co. | ?? ?? <u>?</u> ? | | Aug. 4, 1896 | 150000. | 150000 | 1, | NES |
| Ontario S. M. Co. | San Francisco | | Dec. 14, 1876 | 10,000000 | 100000 | 100. | 5, |
| | | Increased | Increased Nov. 21, 1879 | 15,000000. | 150000 | 100 | M. |
| Ornament G. & S. M. Co. | Salt Lake City | | Nov. 15, 1880 | 10,000000 | 100000 | 100. | lN |
| Ohio Con. G. & S. M. Co. | *9 99 99 | Idaho | Jan, 18, 1881 | 10,000000. | 100000 | 100 | EF |
| Ozokerite M. Co. | New York City | Wasatch Co. Utah March 3, 1886 | March 3, 1886 | 1,250000. | 12500 | 100. | cs |
| Occidental M. & M. Co. | Marysvale. Utah | | Feb. 17, 1881 | 500000 | 50000 | 10, | A |
| Old Hickory M. & S. Co. | Beaver | | May 9, 1881 | 1,000000, | 2000) | 50. | N |
| Overland M. Co. | Salt Lake City | | Nov. 4, 1881 | 1,250000. | 125000 | 10. | D |
| Ogden M. & Mfg. Co. | Ogden | Weber & Morgan Aug. 28, 1886 | Aug. 28, 1886 | 1,000000. | 100000 | 10. | MI |
| Osceola Gravel M. Co. | Salt Lake City | White Pine, Nev. Oct. 13, 1884 | Oct. 13, 1884 | 5,000000. | 20000 | 100. | NE |
| Old Jordan M. & M. Co. | 27 22 23 | | April 26, 1880 | 10,000000. | 100000 | 100. | K. |
| Ophir Hill M. & Con. Co. | " " | | Sep. 12, 1890 | 25000. | 1000 | 25. | 1 L |
| Ophir Mammoth M. Co. | " " " | | Feb. 7, 1891 | 2,0000000 | 200000 | 10. | S |
| Old Jordan & Galena M. Co. | 27 27 29 | Bingham | Aug. 25, 1891 | 2,000000. | 00007 | 100. | OI |
| Ogden Mining Co. | Ogden | | Aug. 10, 1891 | 500000. | 200000 | 1. | 9 |
| Ogden-La Plata M. & M. Co. | 9.9 | | Nov. 10, 1891 | 1,000000. | 1,000000 | ij | O.I |
| Opohongo M. Co. | Salt Lake City | | Jan. 27, 1892 | 200000. | 100000 | 2, | A |
| Ophir Con. M. Co. | 17 27 33 | | Aug. 20, 1892 | 1,200000. | 000009 | 2. | н. |
| Ço. | Ogden | | Oct. 3, 1892 | 1,500000. | 1,500000 | 1. | |
| | ,, | | June 21, 1894 | 40000 | 40000 | Ι. | |
| I. Co. | Salt Lake City | | Nov. 30, 1895 | 2,500000. | 250000 | 10. | |
| Occidental M. Co. | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | Sept. 9, 1895 | 250000. | 25000 | 10° | 01 |

| 38 | MINES, | MINERS AND | MINERALS OF UTAH. | |
|---|---|--|--|--------------|
| PAR | જાં ને હે જ | H H O O H | 25, 25, 100, 100, 100, 100, 100, 100, 100, 10 | 100. |
| NO, OF SHARES | 300000 1,000000 300000 400000 500000 | 1,000000 100000 4C0J00 100000 200000 100000 | 10 000 2000 10000 60000 20000 200000 200000 200000 200000 | 100000 |
| CAPITAL STOCK. | 600000, 1,000000, 300000, 2,000000, 1,000000, | 1,000000. 100000. 400000. 2,00000. 1(:0000. | 1,030000. 50000. 10,0 10000. 6,000000. 1,00000. 1,000000. 600000. | 10,0000000. |
| DATE OF IN- CAPITAL CORPORATION. STOCK. | Feb. 18, 1896 Feb. 26, 1896 Nov. 29, 1895 March 2, 1896 March 4, 1896 | March 17, 1896 March 30, 1896 April 27, 1896 March 15, 1880 July 17, 1883 April 26, 1887 | Sept. 7, 1880 Nov. 28, 1879 June 23, 1886. Feb. 28, 1887 April 25, 1877 Sept. 6, 1882 March 19, 1879 Feb. 13, 1882 Nov. 11, 1889 July 22, 1892 | Dec. 6, 1879 |
| E LOCATION OF MINE. | | Park City | Bingham Sept. 7, 1880 Anov. 28, 1873 June 28, 1886. Feb. 28, 1887 Washington Co. Sept. 6, 1882 March 19, 187 Feb. 18, 1882 March 19, 187 Feb. 18, 1882 March 19, 187 July 22, 1889 | |
| PRINCIPAL PLACE OF BUSINESS. | Salt Lake City " " " " " " " " " " " " " " | Ogden Salt Lake City " " " " " " " " " | Salt Lake C Park City & Rapids, N Salt Lake O Provo Provo Sant Lake C New York Joliet; III. | " |
| NAME OF COMPANY. | Omaha G. M. Co. Official G. M. Co. Ophir Con. G. M. & M. Co. Overland G. M. Co. Oregranda M. & M. Co. | Oro Gold M. & M. Co. Olympian M. & M. Co. Old Imperial M. & M. Co. Park Con. M. Co. Park M. & M. Co. Park M. & M. Co. Park M. & M. Co. Prince of Wales G. & S. Con | M. Co. Park City Smelting Co. Park City Smelting Co. Park City Rapids, Prove Mining Co. Prove Salt Lake Prove Mining Co. Prove Salt Lake Parley Park S. M. Co. Pluto M. & M. & Smelt Co. Peter Cooper M. Co. of Utah Peter Cooper M. Co. Putanam Mng. Co. Putanam Mng. Co. Salt Lake Peter Cooper M. Co. of Utah Peter Cooper M. Co. Peter Cooper M. Co. Peter Cooper M. Co. Peter Cooper M. Co. Peter Cooper M. Co. Peter Cooper M. Co. Salt Lake Peter Cooper M. Co. Peter Cooper M. Co. Peter Cooper M. Co. Salt Lake | Utah Ty. |

| | .1 | MIN: | ES, | MIN | ERS | 5 A | ND | MI | NE | RA | LS | OF | υ | T | ΑH | | | 39 |
|---|--------------------------------|---|--|---|---------------------------|--------------------------|---------------------------|--------------------------|---------------|---------------------|---|----------------|-----------------------------|---------------------------------|-----------------|---------------------------|----------------------------------|---------------|
| PAR. | 10). | 10. | 1.5 | | : ;; | | | | 1, | 1 | 1, | ; | 1 | ည် | 10. | າດ | 20. | ń |
| NO. OF SHARES | 1,0000 | 2,000000 | 150000 | 100000 | 200000 | 700000 | 400000 | 20000 | 80000 | 3 10003 | 200000 | 500000 | 200000 | 100000 | 200000 | 150.00 | 100000 | 100000 |
| STOCK. | 1,000000. | 20,0000000. | 1,000000, | 1,000000. | 500000 | 700000 | 800000 | | 80000 | 300000 | 500000 | 500000 | 5 0000. | 500000, | 20000 | 750000 | 2,0000000 | \$00000. |
| DATE OF IN- CAPITAL CORPORATION, STOCK, | Feb. 24, 1891 July, 18 1890 | Sep. 1, 1890 April 2, 1891 | July 6, 1891 Nov. 30, 1891 | Jan. 29, 1891 April, 1892 | March, 1892 | Sept. 6, 1892 | Oct. 12, 1892 | | Mar. 20, 1893 | Feb. 1, 1896 | Feb. 15, 1896 | March 12, 1896 | Mar. 14, 1896 | Mar. 14, 1896 | June 27, 1896 | May 5, 1883 | Oct. 1, 1880 | Feb. 16, 1893 |
| LOCATION OF MINE. | | | | | | | | | | | | | | | | | | |
| PRINCIPAL PLACE OF BUSINESS. | " t Lake (| : : | Salt Lake City Tooele City | Salt Lake City | 99 99 99 | 11 11 11 | | A A | 33 33 | Provo | Salt Lake City | 99 | 99 | . 12 64 44 | Horton, Kansas | Sait Lake City | Ogden | 9 |
| NAME OF COMPANY. | Petro M. Co. Paxman M. Co. | Pioche Con M. & Red, Co. Pioneer M. & M. Co. | Peruvian Con. M. Co. Pine Canyon M. Co. | Pasadena M. Co. Pride of the West M. Co. | Pride of the Hills M, Co. | Pan-American M. & M. Co. | P. T. Mayne Tunnel Site & | Pine Grove Gold Recovery | Co. | Peru G. & S. M. Co. | Prospectors G. M. Co. Peepstone Centennial G. M. | Co. | Peepstone Pioneer G. M. Co. | Planetary G. & S. M. & M. Co. " | Primrose M. Co. | Queen of the Hills M. Co. | Quimby Hill G. & S. M. Co. Ogden | Co. |

| 40 | | | - 1 | 111 | NE | ,5, | 1 | VII. | NE | LK | 5 | AI | ND | T | 11. | NE | K. | AL | 18 | O | F. | U. | A | н. | | | | |
|---------------------|----------------|----------------|-------------------|---------------------|--------------------------|------------------|---------------------|-----------------------|-------------------|--------------------|----------------------|------------------|-----------------|-----------------------|-------------------------|----------------|------------------------|---------------------------|-----------------|------------------------------|--------------------|-----------------|-----------------|---------------|------------------------|--------------------|---------------------|-----------------------|
| PAR | VALUE. | 10. | 1. | 100. | 10. | 10. | 25. | 10. | 100 | 10. | 10. | ıů | 10, | 10. | | H | 1. | Ļ | 10. | 10. | 10. | 10, | 50 | 4, | 100. | T. | 1. | 2, |
| NO. OF | SHAKES, VALUE, | 100000 | 150000 | 200000 | 40000 | 100000 | 100000 | 7200 | 100000 | 100000 | 200000 | 200000 | 100000 | 100000 | | 200000 | 2,000000 | 200000 | 150000 | 150000 | 10000 | 20000 | 0000001 | 250000 | 10000 | 200000 | 1,000000 | 000009 |
| CAPITAL | STOCK. | 1,000000. | 150000, | 20,0000000 | 400000 | 1,000000. | 2,500000. | 72000. | 10,000000. | 1,000000. | 5,000000. | 1,000000. | 1,000000. | 1,000000 | | 5000 10. | 2,000000 | 500000 | 1,500000. | 1,500000. | 100000, | 200000. | 5,000000 | 1,000000. | 1,000000. | 200000 | 1,000000. | 1,200000. |
| DATE OF IN- CAPITAL | contonation. | July 1, 1881 | May 11, 1896 | Jan. 26, 1881 | April 10, 1886 | July 29, 1886 | Feb. 27, 1880 | May 27, 1882 | Mar. 20, 1880 | Mar. 30, 1881 | July 8, 1880 | Sept. 29, 1883 | Sept. 21, 1890 | Dec. 28, 1891 | | April 14, 1892 | Jan. 26, 1892 | Mar. 30, 1892 | Aug. 31, 1895 | Jan. 23, 1896 | Feb. 25, 1896 | Mar. 2, 1896 | Mar. 2, 1896 | Mar. 18, 1896 | Mar. 21, 1896 | Mar. 21, 1896 | Mar. 3, 1896 | March 9, 1896 |
| LOCATION OF | WELLIAM. | | | | | | | | | | | | | ٠ | | | | | | | | | | | | | | |
| PRINCIPAL PLACE | OF POSTUPESS. | Salt Lake City | Lehi | Salt Lake City | 19 3 H | •9 39 39 | Jersey City. Boston | Salt Lake City | 99 99 99 | 99 99 99 | 27 27 29 | 99 99 99 | 27 22 34 | Logan | n. | Salt Lake City | Ogden | 91 | Salt Lake City | 33 33 33 | 33 33 33 | 99 99 99 | 99 99 99 | 90 | , ,, | 99 99 99 | St. Louis, Mo. | Salt Lake City |
| NAME OF COMPANY. | | Quigg M. Co. | Queen Con. M. Co. | Rebellion S. M. Co. | Rock Creek Placer M. Co. | Rochester M. Co. | 30, | Red Cloud M. & S. Co. | Romeo Con. M. Co. | Red Warrior M. Co. | Royal M. Co. of Utah | Red Cloud M. Co. | Resolute M. Co. | Rich-Cache Mining Co. | Richmond & Anaconda Con | M. Co. | Red Jacket M. & M. Co. | Retribution M. & Red. Co. | Rover G. M. Co. | Reliable G. & S. M. & M. Co. | Rescue M. & M. Co. | Reindeer M. Co. | Raven G. M. Co. | Rex M. Co. | Rhymney G. & C. M. Co. | Rex G. M. & M. Co. | St. Louis G. M. Co. | Sunset G. & S. M. Co. |

| NAME OF COMPANY | PRINCIPAL PLACE | LOCATION OF | LOCATION OF DATE OF IN- CAPITAL MINE CORPORATION STOCK | CAPITAL | NO. OF | PAR |
|--------------------------------|-----------------|-------------|--|------------|-----------|----------|
| | Or Business. | MINE. | com onarios. | STOCK. | SHAMES. | TOTAL A |
| South Star G. M. Co. | " | | Mar. 12, 1896 | 1,000000 | 1,000000 | 1, |
| Star G. & S. M. Co. | " " " | | March 12, 1896 | 1,000000. | 200000 | ů. |
| South Sunshine G. M. & M. | 19 19 19 | | | | | |
| Co. | | | Mar. 4, 1896 | 1,0000000. | 200000 | લં |
| South Geyeer M. Co. | " " | | March 6, 1896 | 250000. | 250000 | 1. |
| Sunlight M. & M. Co. | 99 99 99 | | Mar, 18 1896 | 1,000000 | 200000 | io. |
| Skull Valley M. & D. Co. | 19 19 19 | | Mar. 16, 1896 | 1,250000. | 250000 | <u>ئ</u> |
| Spring Gulch G, M. Co. | " " " | | March 19, 1896 | 400000 | 400000 | 1. |
| Star Con, M. Co. | 11 11 11 | | April 11, 1896 | 150000. | 150000 | 10. |
| Star M. Co. | " " | | Oct, 22, 1892 | 1,250000. | 1,250000 | 1, |
| Silver City G. & S. M. Co. | 79 79 79 | | May 5, 1892 | 800000. | ₹00000 | 2. |
| Stockton M. & S. Co. | | | July 11, 1892 | 400000 | 400000 | 1, |
| Steamboat M. Co. | Park City | | Aug. 2, 1892 | 1,500000. | 15000 | 10. |
| Silver Lode M. & M. Co. | Salt Lake City | | May 27, 1892 | 500000. | 100000 | 5.0 |
| Skull Valley M. & M. Co. | 39 99 99 | | Jan. 14, 1896 | 1,500000. | 300000 | 20 |
| Sunnyside M. Co. | 19 99 99 | | Feb. 13, 1896 | 500000 | 200000 | 2.50 |
| Sego Lily G. M. Co. | ,, ,, ,, | | Feb. 29, 1896 | 1,000000. | 1,000000 | - T |
| Sacramento G. M. Co. | 19 31 19 | | Mar. 2, 1896 | 5,000000. | 1,000000 | ຳດ |
| Superior G. & S. M. Co. | 33 33 33 | | March 7, 1896 | 500000 | 200000 | 1, |
| Sunset M. Co. | Omaha, Neb. | | Nov. 6, 1891 | 1,000000. | 250000 | 4. |
| St. George M. & M. Co. | Salt Lake City | | March 7, 1891 | 1,0000000 | 100000 | 10. |
| Salina G. & S. M. Co. | 19 39 39 | | Dec. 30, 1890 | 2,0000000. | 400000 | 5 |
| Salvator M. Co. | 19 19 19 | | May 19, 1891 | 1,0.0000. | 100000 | 10. |
| Stanley M. Co. | | | July 17, 1890 | 3,000000. | 300000 | 100 |
| Silver King M. Co. | Vernal, Uintah | | Aug. 27, 1890 | \$000c0. | 20000 | 10. |
| South Fork Con. M. Co. | Salt Lake City | | Mar. 19, 1890 | 50000 | 20000 | |
| Sundown & La Plata M. Co.Logan | .Logan | | Oct. 1, 1891 | 1,000,000 | 1,000,000 | 1. |

| | MINES, | MINERS | AND MINERA | ALS OF UTAH. | |
|--|---|--|---|--|---|
| PAR VALUE | 20. 100. 10. 5. | 10. 10. 10. | 10. | 10. | 20. 10. 10. |
| NO. OF SHARES | 150000 20000 250000 400000 200000 | 50,000 100000 100000 30000 250000 | 100000 20000 100000 100000 50000 | ancs 100000 200000 150000 | 100000 200000 100,00 200000 |
| CAPITAL STOCK, | 3,000000. 2,000000. 2,500000. 2,000000. 1,000000. | 500000, 500000, 1,000000, 150000, | 1,00000. 3,00000. 100000. 500000. 250000. | 20,000003 francs 1,000000, 100 2,000000. 200 1,500000. 150 | 2,0000.0. 2,0000 10. 1,000000. 2,000 10. |
| DATE OF IN- CORPORATION. | Aug. 18, 1892 Dec, 30, 1885 March 15, 1884 May 15, 1885 May 21, 1890 | July 25, 1891 Aug. 27, 1891 Nov. 19, 1890 ooct. 14, 1891 June 1, 1891 | Dec. 15, 1883 April 29, 1884 Jan. 18, 1882 June 15, 1887 Sept 10, 1884 Jan. 16, 1889 | Dec. 15, 1881 June 28, 1880 March 25, 1880 April 29, 1882 | Oct. 1, 1880 Jan. 19, 1882 Jan 27, 1881 May 3, 1880 |
| LOCATION OF MINE, | | West Mt. Dist. July 25, 189 Aug. 27, 189 Nov. 19, 189 Oak Creek,Mil.CoOct. 14, 1891 June 1, 1891 | Cincinnati, Ohio Dec. 15, 1888 April 29, 188 Silver Lake Dist, Jan. 18, 1882 June 15, 1887 Sept 10, 1884 Jan. 16, 1889 | Dec. 15, 1881 June 28, 1880 Star Dist. March 25, 1880 Saw Tooth Dist. April 29, 1882 | Uintah Dist. |
| PRINCIPAL PLACE LOCATION OF OF BUSINESS, MINE, | Salt Lake City " " " " " " " " | " " " Provo Salt Lake City | . | Salt Lake City Beaver Ogden | Salt Lake City " Salt Lake City |
| NAME OF COMPANY. | Silver King M. Co. Star M. Co. Salmon River M. Co. Shower Con. G. & S. M. Co. Sparrow Hawk M. Co. | Sampson M. Co. Snow Flake M. Co. Sioux Con. M. Co. Silver Maple M. & M. Co. Sevier M. & M. Co. | Superior M. Co. Scott Hill Con. M. Co. Silver Lake M. Co. Silver King M. Co. Shamrock M. Co. Salt Lake Tripoli | Societe Anonyme des Mines de Lexington. Stanley Con. M. Co. South Star M. Co. aw Tooth G. & S. M. Co. of Idaho Saw Tooth & Wood River G. | & S. M. Co. Silver Key M. Co. South Galena Con. M. Co. Summit M. Co. |

| NAME OF COMPANY. | PRINCIPAL PLACE OF BUSINESS. | PRINCIPAL PLACE LOCATION OF DATE OF IN: CAPITAL OF BUSINESS. MINE. CORPORATION, STOCK, | DATE OF IN. CAPITAL CORPORATION. STOCK, | | NO. OF PAR. SHARES. VALUE. | PAR ALUE. | |
|--|------------------------------|--|---|--------------|----------------------------|-----------------|-----|
| Silver Mountain M. Co. | 99 99 | Tintic | Nov. 21, 1879 | 10,000000. | 100000 | 100. | M |
| Societe des Mines d' Argent et Fonderies de Bingham Paris, France | Paris, France | Bingnam | Jan. 24, 1879 | 17,00000 fr. | | 34000 sh. 500fr | INI |
| Silver Wave M. Co. | Chicago | | Nov. 24, 1883 | 2,500000. | 250000 | 10. | ES. |
| Snake Creek G. & S. M. Co. | Salt Lake City | | May 25, 1830 | 3,000000. | 300000 | 10. | , 1 |
| Sole Leather M. Co. | 99 99 99 | | July 3, 1880 | 1000000, | 100000 | 10. | ΜI |
| Southern Tier M. Co. | Corning, N. Y. | Snake Dist. | Aug. 6, 1883 | 2,0000000. | 100000 | 30. | NI |
| Stormont M. Co. | Salt Lake City | | June 13, 1882 | 500000 | 200000 | 1. | ER |
| Shoebridge Bonanza M. Co. | 59 99 99 | | May 6, 1896 | 200000 | 200000 | 1. | S |
| Sutter Creek G. M. Co. | 99 99 99 | | May 14, 1896 | 100000 | 100000 | 1, | A] |
| Tough Nut M. Co. | 99 99 99 | | Feb. 21, 1896 | 10000. | 1000 | 10. | NI |
| Tioga G. M. & M. Co. | Ogden | | March 3, 1896 | 800000 | 800000 | 1. |)] |
| Treasure Vault M. & M. Co. Marysvale | Marysvale | | Jan. 10, 1896 | 775000. | 775000 | 1. | MI |
| Treasure Hill M. Co. | | | Mar. 2), 1896 | 500000. | 200000 | -: | NE |
| Filed. | | | | | | | ER. |
| June 11,01d Fred G.M.&M.Co.Salt Lake City | Salt Lake City | | June 10, 1896 | 1,000000. | 1,000000 | - 1, | AΙ |
| " 2, Queen Con. M, Co. | ,, ,, ,, | | May 11, 1896 | 150000 | 150000 | 1. | رS |
| " 13, South Swansen M.Co. | ,, ,, ,, | | May 2, 1896 | 150000. | 150000 | 1, | 0 |
| " 23, Silver State M. & | | | June 10, 1896 | 100000 | 100000 | 1. | F |
| M. Co. | ,, ,, | | | | | | U' |
| Tesora M. Co. | Chicago | Tintic Dist. | Feb. 10 1880 | 500000 | 20000 | 10. | ГΑ |
| Thor & Bright Point M. Co. San Francisco | San Francisco | Cottonwood | March 13, 188) | 3,000000. | 00009 | 20. | Η. |
| True Fissure M, Co, | Chicago | | NOV. 25, 1882 | 1,500000. | 150000 | 10. | |
| Treasure M. Co, | Salt Lake City | | Oct. 18, 1887 | 160000. | 16000 | 10. | |
| Tacoma Con. M. Co. | Salt Lake City | | Mar. 28, 1887 | 1,000000. | 100000 | 10. | |
| Telegraph M. Co. | 33 33 33 | | Aug. 12, 1880 | 2,5000000. | 100000 | 25. | |
| | | | | | | | |

| | MINES, | MIN | ER | S A | ND | MI | NE | KAL | 2,5 | OF | U | ΓA | Ħ. | | |
|--|--|--|------------------------------|---------------|---|---------------|---------------|-------------------|----------------|---------------|--------------------------------|--------------|--|----------------|--|
| PAR | 100. 100. 25. | 100. | 10, | 10. | 10. | 10. | i | 100. | 1. | 2.50 | 10, | 1. | - i - | 10. | 10. |
| NO. OF SHARES | 500 100000 60000 100000 300 | 1500 | 100000 | 20000 | 700000 | 100000 | 300000 | 275 | 200000 | 200000 | 1000 | 803000 | 775000 | 500000 | 200000 |
| CAPITAL STOCK. | 50000, 1,000000. 6,000000. 2,500000. 30000. | 1,50000. | 1,000000. | 200000 | 2,500000. | 1,000000. | 30000). | 27500. | 2)0000. | 1,250000. | 250000. | 8000000 | 775003. | 5 0 10000 | 2,00000n. |
| DATE OF IN- CORPORATION. | Aug, 24, 1881 Mar. 21, 1885 Feb. 13, 1877 Nov. 25, 1880 Jan, 6, 1880 | Dec. 8, 1890 | May 3, 1889 June 11, 1889 | Feb. 10, 1880 | April 7, 1890 Dec. 16, 1893 | June 15, 1891 | Sept. 4, 1891 | Mar. 9, 1892 | May 6, 1892 | April 6, 1892 | Jan. 4, 1893 Feb. 1, 1896 | Mar. 3, 1896 | Jan. 10, 1896 | Mar. 20, 1896 | Dec. 1, 1881 |
| LOCATION OF MINE. | iver | | | st. | | | | | | | | | | | |
| | Wood River | | | Tintic Dist. | | | | | | | | | | | |
| PRINCIPAL PLACE LOCA' OF BUSINESS, . M | Salt Lake City """ San Francisco San Erake City York, III. | Frinty Con. G. & S. M. Co. Ogden Tallsman & Stalwart Con. | Seattle, Wash. | - | Freasure Con. G. & S. M. Co. American Fork Fintic M. S. M. Co. | | : : | ore Asnen Col. | Salt Lake City | 33 | Freasury Vault M. & M. Co. " " | Ogden | Freasure Vault M. & M. Co. Marysvale. Utah | Salt Lake City | Oran Con. M. Co. Chion Con. M. Co. of Coun- cil Bluff, Io, Council Bluff |

| NAME OF COMPANY. Utah M. & Red, Co. | PRINCIPAL PLACE OF BUSINESS, Denver, Col. | LOCATION OF MINE. | DATE OF IN- CAPITAL CORPORATION. STOCK. Dec. 29, 1883 5,000000 | CAPITAL STOCK. 5,003000, | NO. OF SHARES 500000 | PAR VALUE 10. |
|-------------------------------------|---|-------------------------------|--|--------------------------------|----------------------------|---------------------|
| Utah Marble & Mining | Salt Lake City | Snake Cre. Min.D.June 5, 1880 | June 5, 1880 | 3,0000000 | 300000 | 10. |
| Utah Gem. M. Co. | ********** | | Aug. 8, 1884. | 1,000000. | 10000 | 100. |
| Union Con G. M. Co. | 33 33 33 | Georgetown, Col. June 1, 1888 | l. June 1, 1888 | 10000 | 1000 | 10. |
| Uintah M. Co. | 99 99 99 | | June 12, 1880 | 2,0000000 | 20 000 | 10, |
| Utah Valley Iron Min. | Se constant | | | | | |
| Mfg. Co. | Provo | | Sept. 2, 1884 | 100001. | 20000 | ņ |
| Utah Coal & Iron Co. | Ogden | | Nov. 21, 1888 | 2,0000000 | 200000 | 10. |
| Union M. Co. | Salt Lake City | | April 15, 1882 | 2,0000000. | 200000 | 10. |
| Utah Silver M. Co. of Park | м. | | | | | |
| City | Park City | | Aug. 17, 1880 | 10,00.0000 | 100000 | 100. |
| Utah Min. & Mfg. Co. of | of | | | | | |
| Cleveland, Obio. | | | Nov. 7, 1873 | 300000. | 30000 | 10. |
| Union Concentrating Co. | Park City | | April 29, 1889 | 20000. | 800 | 25. |
| Utah & Cal. G. M. Co. | Salt Lake City | Shasta Co., Cal, | June 11, 1889 | 50000. | 2000 | 10. |
| Utah State G. M. Co. | 99 99 99 | | Feb. 20, 1896 | 300000. | 300000 | 1. |
| Utah & N. Y. G. Mine Syn | n- | | | | | |
| dicate | 77 77 79 | | March 19, 1896 | 5,000000. | 5,000000 | 1, |
| Unele Sam M. Co. | 99 99 99 | | Ap. 28, 1896 | 200000. | 200 100 | 1. |
| Vietor G. & S. M. Co. | 99 99 99 | | Jan. 16, 1883 | 2,500000. | 103000 | 25. |
| Vanderbilt S. M. Co. | 19 29 39 | | May 31, 1882 | 2,500000. | 100000 | 25. |
| Ventura M. & Red. Co. | Silver Reef | | March 31, 1887 | 60000. | 00009 | 1. |
| Viking G. M. Co. | Colorado Springs | | Dec. 2, 1893 | 300000. | 3000 | .001 |
| Viking G. M. & M. Co. | Salt Lake City | | June 30, 1893 | .0000009 | 600000 | 1. |
| Vanderbilt M. Co. | 11 11 11 | | Sept. 9, 1895 | 150000. | 150000 | 1, |
| Victoria Copper M. Co. | Chicago | | May 3, 1888 | 1,000000. | 10000 | 100. |
| Virginia G. M. Co. | Salt Lake City | | Feb. 25, 1896 | 200000 | 000007 | ÷ |

| | PRINCIPAL PLACE LOCATION OF | DATE OF IN. CAPITAL | CAPITAL | NO. OF | PAR |
|------------------------------------|---|---------------------|------------|----------|-------|
| NAME OF COMPANY. | OF BUSINESS. MINE. | CORPORATION. STOCK. | STOCK. | SHARES | VALUE |
| Venezuela G. M. Co. | | March 16, 1896 | 50000 | 20000 | 1. |
| Vulcan M. Co. | Portland, Me. | Oct. 26, 1888 | 500000 | 200000 | 2.50 |
| Washington M. Co. | Salt Lake City | Oct, 11, 1884 | 1,000000. | 100000 | 10. |
| Wayne M. Co. | 22 22 23 | Nov. 12, 1885 | 100000. | 100000 | 1, |
| Winnamuck M. & M. Co. | . , , , , , , , , , , , , , , , , , , , | July 28, 1887 | 200000. | 100000 | 2. |
| West End M, Co. | Park City | Sept. 14, 1887 | 1,500000. | 150000 | 10, |
| Watson M. Co. | Salt Lake City | Dec. 18, 1888 | 205000. | 205000 | 1 |
| Woodside M. Co. | Park City | June 1, 1889 | 1,0000000. | 100000 | 10. |
| West Mountain Mining Co | 0, | | | | |
| Ld. | London, Eng. | July 26, 1888 | £70000. | 20000 | £1, |
| Willard Silver Bell M. Co. | Ogden | Nov. 24, 189) | 200000. | 20000 | 10, |
| Well Annie M. & M. Co. | Salt Lake City | Dec, 7, 1891 | 250000. | 250000 | 1. |
| Wasatch M. Co. | Heber, Was. Co. | April 30, 1892 | 1200000. | 120000 | 10. |
| Waldeck G. M. Co. | Salt Lake City | Dec. 22, 1892 | 500000 | 100001 | ů, |
| West Cable M. & M. Co. | 99 98 99 | Mar. 14, 1893 | 1500000. | 300000 | က် |
| West Mountain Placer M. | f. | | | | |
| Co. | | April 19, 1894 | .200000. | 2 10000 | i. |
| Wonder G. M. Co. | Salt Lake City | Feb. 16, 1896 | 5,0000000. | 1000000 | ō. |
| West Sunshine M. Co. | | Jan, 29, 1896 | 1,250000. | 250000 | 10 |
| West Mercur G. M. & De- | | | | | |
| velop Milling Co. | 32 33 33 | March 2, 1896 | 2,0000000. | 1,000000 | 63 |
| Yosemite M. & M. Co. | 39 39 39 | March 18, 1887 | 1500000, | 300000 | າຕໍ |
| Yellow Jacket M. Co. | 27 27 | July 12, 1892 | 3000000 | 300000 | 1, |
| Yuba M. & Red Co. | 39 99 99 | April 2, 1888 | 2,5000000. | 250000 | 10. |
| Yosemite No. 2. M. Co. | 4 23 23 | March 10, 1887 | 1,0 ,0000. | 1(0000 | 10. |
| Yellow Jacket G. M. & M. Co. Ogden | o.Ogden | March 10, 1896 | 1,500000. | 300000 | ຜ |
| | | | | | |

| 60 | 2. | | , | | | | | | | | | | | | | |
|--|---------------------------------------|--|---|----------------|-----------------|---------------------------------|---------------------------------------|---------------------|-------------------------|------------------|--|------------------------|---------------------|--------------------------|--------------------------|--------------|
| PAR VALUE | 1 70 | | ï | 1. | | 1. | 1. | 5. | | 1. | 1. | 2. | 1. | 1, | 3 | 1. |
| NO, OF PAR SHARES VALU | 250000 | | 300000 | 800000 | | 200000 | 100000 | 8000 | | 800000 | 200000 | 200000 | 250000 | 100000 | | 200000 |
| CAPITAL STOCK. | 250000 | | 300000. | 800000 | | 200000. | 100000. | 40000 | | 800000 | 200000. | 400000. | 250000. | 100000. | | 200000. |
| DATE OF IN- CAPITAL CORPORATION, STOCK. | May 19, 1896 March 1, 1892 | IST COMPILED. | April 6, 1896 | March 16, 1896 | | Aug. 6, 1896 | June 5, 1826 | April 3, 1896 | | May 16, 1896 | July 11 1:96 | July 20, 1896 | July 1, 1896 | June 11, 1896 | | Aug. 7, 1896 |
| PRINCIPAL PLACE LOCATION OF OF BUSINESS. MINE. | Tintic Bingham | COMPANIES ORGANIZED SINCE LIST COMPILED. | | | | Fish Springs | | | | ָרָב. | | | | | | |
| PRINCIPAL PLAC | Salt Lake City | COMPANIES O | o. Salt Lake City | ., ,, ,, | Salt Lake City | 70. Lehi | Co.Salt Lake City | 11 11 11 | ble | Morgan City, Ut. | Co.Salt Lake City | 19 23 11 | 17 17 17 | 0. " " " | per | Ogden |
| NAME OF COMPANY. | Yankee Girl M. Co. York Mining Co. | | Commercial G. M. & M. Co. Salt Lake City Chicago & Hard Scrabble | Mining Co. | Cactus Con Gold | Cactus & Eagle Con. M. Co. Lehi | Dipper Gold M. & M. Co.Salt Lake City | Black Dragon M. Co. | Chicago & Hard Scrabble | M. Co. | Frisco Mining & Milling Co. Salt Lake City | Santa Anna Gold M. Co. | Sunbeam Con, M. Co. | Utah Mining Guaranty Co. | Van Patten Gold & Copper | M. Co. |

Valuable Hints to Prospectors and Miners.

Without the prospector the world's money would be wampum; and yet but few prospectors, comparatively speaking, know anything about geology and mineralogy, two important and useful adjuncts to speedy success in a mineralized country. A few hints given here may do many some good, and not a few may find substance for study if not a fortune.

Nearly all silver leads are found in the lime rocks, rarely over 200 feet thick, and only in the lower division of the carboniferous formation.

Gold is chiefly found in crystalline formation. There are exceptions, but rare. Get acquainted

with crystalline formations.

A true fissure is found only with granite walls on both sides running through the crust of the

A contact, or false fissure, lies between rocks of different characters, either granite and porphyry or lime and porphyry—both good indications.

Carbonate ores usually lie horizontally in either

blanket veins or in contacts with lime.

A crevice in porphyry reaches only to the granite.

Gold is where you find it—in pockets, chim-

neys, ledges, leads and placers.

In the field the prospector's eyes should be on

the ground as much as possible, and he should never pass a rock if he has any doubt about its nature, without thorough examination. Look for "float" at the bottom of the hill, and when found follow it up until its source is discovered: examine all prominent croppings as the hill is climbed, and if not hidden the vein will be easily found; if hidden, the pick must unearth it. If a lead lies up and down a hill, croppings will be found at the foot; especially if a stream of water is near; if along the

hill prospect the gulches which cross it.

Sharp gulches and ridges may indicate ore harder or softer than the country rock, which should be prospected if for nothing more than the digging to learn the general formation. Where it is possible it is best to make locations at the top of a hill. Once a lead is found, drive a stake where the discovery shaft is intended to be; on the stake write the name of the mine, date of location, direction and extent of claim, and sign the name of the locator. The discovery shaft may be anywhere on the center line lengthwise of the claim, but must not be over 150 feet from either side line. The law gives 60 days to cut the lead 10 feet from the surface of the ground, and 30 days more in which to survey and put on county records. If this work is well done it will hold the claim till the following December 31st. During each year thereafter \$100 worth of work must be done on each claim. In surveying put up six stakes, numbering them 1 to 6-one at each corner, and one at the center of each side line.

PROSPECTOR'S ASSAYS.

Every prospector should be able to do his own assaying for reasons that are too obvious for citation. These formulas are given for those entirely ignorant of chemistry and technical terms are eschewed as far as possible. The various solutions are put under different heads so that no one using judgment and care need make the least mistake. The first given will be the acid, or wet assay test, for which the prospector will provide himself with the following:

| Nitric Acid-1 pound chemically pure | 2 75 |
|--|--------|
| | |
| Sulphate of Iron—1 ounce C. P | .10 |
| Hydrochloric Acid—1 pound C. P | .50 |
| Stronger Water of Ammonia -4 ounces | .15 |
| For Platinum-Potassium Chloride-1 ounce | .05 |
| For Copper-Cyanide of Potassium-1 ounce | .10 |
| For Tin-Antimony-Tartartic Acid-4 ounces | .25 |
| Quart Iron Mortar and Pestle | 1.00 |
| 6 Test Tubes, 6 Salt Mouthed Bottles | 1.00 |
| Pint Glass Funnel | .35 |
| Large Iron Spoon | .25 |
| Alcohol and Lamp | 1 00 |
| Acid Dropper | .15 |
| Filter Paper, 100 Sheets, White 6 inch | .35 |
| | |
| | \$6.00 |

The prices given will be found about alike the

country over.

Select sample of ore, pulverize into fine powder in mortar, roast it in the spoon until it comes to a cherry red. The ore may be roasted before pulverized if done slowly on wood coals, as is done for gold in telluride. If no change takes place in roasting, it contains no easily fused substance, but if it fuses, light a bit of paper and drop in it; if it burns brightly, chlorides or nitrates are present.

SOLUTION A—Put such portion of the powder to be treated into a test tube or open mouthed bottle, cover it with nitric acid and set it where it will be gradually heated. If it completely dissolves, or if the addition of a little soft water completes the dissolution, the sample contains neither gold, tin, platinum nor antimony, but may contain silver, lead and bismuth.

SOLUTION A A—If the sample is not entirely dissolved; but leaves a deposit, this residue may be either metallic or what is termed non-metallic, and may contain gold and platinum, tin and antimony.

The solution A A may then be filtered into a clean bottle (as it can be drained off, as can also the rinse waters.) It is then the same as A, and may be used

for silver and lead tests.

SOLUTION B—For the metallic residue of gold, remaining in the filter paper, carefully rinse the filter paper and put into a clean bottle in which is dissolved nitro-muriatic acid. The acid must be fresh, 4 parts nitric and 15 parts hydrochloric.

SOLUTION C—Now add to B sulphate of iron. If gold is present it sometimes falls clean, but usually a dark-colored precipitate of metallic gold is thrown down, which will assume the yellow

color and become solid when heated red hot.

For platinum take a part of solution B and add to it chloride of potassium; if platinum is present a yellowish precipitate follows.

If the residue in A A is a white dust or pulverizable substance it may contain tin or antimony. Filter A A, rinse it, and plunge into a strong hot solution of tartaric acid; if this entilrey dissolves it, antimony is present; if a white residue still remains, it is tin.

For silver and lead take solution A, dilute with soft or distilled water; if it still remains clear add a little hydrochloric acid (or common salt to precipitate silver) and if a white precipitate is thrown down heat it; and if it does not then dissolve, filter, rinse, place in another botttle and drench with ammonia; if it dissolves it is silver, and if it does not dissolve it is lead. It may now be reprecipitated by nitric acid.

The presence of copper renders solution A, green. Neutralize A with ammonia till it is blue; add cyanide of potassium till blue color is gone;

copper ammonia cyanide is the result.

If a test for bismuth is wanted divide Solution A before beginning the silver test. Dilute the second portion with soft water; if bismuth is present it will become milky, curdy, or a white precipitate will settle, according to the per cent in the ore. To rinse a residue, gently pour pure water into filter and let it run through into waste vessel. If acid is drained off instead of filtering, pour in and drain off water several times.

Carbonates effervesce in weak muriatic acid;

gas colorless and inoderous.

Mercury with muriatic acid deposits calomel. Nitrates in sulphuric acid give white nitric vapors.

Nitric acid does not disolve silicon, therefore a residue of sand is almost always left in test tube.

THE BLOWPIPE.

The blowpipe is a cheap and speedy way to test many ores, and for this method an iron mortar, iron spoon, charcoal, spirit lamp, borax, sal soda and salt of phosphorous are also needed. Pulverize and roast the ore the same as for the acid test, which is done to remove the sulphur and other hindrances. Take a piece of charcoal large enough to hold safely in the hand, scoop out a cavity in which place the pulverized ore, and with the blowpipe apply the flame of the spirit lamp. There is an art in the manipulation of a blowpipe, which can best be learned from some kindly disposed jeweler in about ten minutes, which would take a page to ineffectually explain. If the flame has no effect, there is probably neither gold, silver, nor copper present; and certainly no lead, tin, mercury, bismuth, antimony, arsenic or cadmium. If it melts without odor, and does not incrust the charcoal support, either gold, silver, tin or copper is present. If an infusible residue is left, of any color except white, make another test by placing another portion of the ore on the charcoal, mixed with sal soda, and apply the flame. If any of the precious metals are present a metallic grain will be produced. If the grain or bead is a query, treat it with acids. Nitric acid dissolves all minerals except gold and platinum. Under the blowpipe a garlic odor denotes arsenic; no odor, but incrustation of charcoal support denotes lead, bismuth, zinc, antimony or cadmium; a white infusable residue denotes zinc; white incrustations on support denotes zinc and antimony; if incrustation is yellow while hot, it is zinc; if yellow when cool it is lead, bismuth or cadmium.

A FEW GOLD TESTS.

A simple test for gold in oxidized ores is to pulverize the ore and place it in a porcelain-lined vessel or tea-cup, and cover with iodine and allow it to stand for two or three hours. Then dip into it a piece of white filter paper, dry and burn it, and if it gives a purple color, gold is present, and the deeper the purple the richer the ore.

For other ores with this test, such as pyrites, the ore must be roasted; where lime is present the ore must be roasted twice, the second time adding carbonate of ammonia. After roasting, test as

with oxidized ores.

To find gold in telluride, heat a lump of ore on wood coals until it comes slowly to a cherry red, then drop it quickly into salt water. The gold will appear in globules on the surface of the ore. It is best to test several pieces at once as one of them will be liable to have the right temperature. If no gold appears pulverize and use the pan. Any free milling ore containing as much as \$12 per ton in gold will show colors when roasted, pulverized and washed down in the gold pan. If you find a color or two from a piece of ore that is two inches square, treated this way, it is a good prospect to work.

A test for tellurium is to pulverize the sample to a fine powder and mix well with half its weight of sal soda and pulverized charcoal; put into an iron spoon and heat until charcoal is all burned away; dissolve the residue in very hot water, but not boiling. If there be the least trace of tellurium the water will be colored a dark amethyst or purple, according to the per cent in the ore.

Mining Parlance.

ADIT—A level; a horizontal drift or passage from the surface into a mine.

ADVERSE—To oppose the granting of a patent to a mining claim.

AIR SHAFT—A shaft for ventilation.

ALLOY-A combination of two or more metals fused together.

ALLUVIUM—Materials transported or deposited by water.

AMALGAM-Gold or silver combined with quicksilver.

APEX—The top or highest point of a vein.

ARASTRA- -A crude mill for grinding ore. ARGENTIFEROUS—Containing silver.

ASSAY—A test of mineral to determine quality and quantity.

ASSESSMENT—Required yearly work. AURIFEROUS.—Containing gold.

BASE BULLION—Lead combined with other metals after smelting. Cast in an ingot.

BLIND LODE—A vein without an outcrop. BLOSSOM ROCK—Detached rock or ore indicating the presence of mineral veins.

BOND—A written conditional option.
BREAST—The face of a tunnel or drift.
BUDDLING—Separating ore by washing.

BULLION—Ingots of gold or silver ready for the mint.

BUMPING TABLE—A concentrating table with a jolting motion.

CALCAREOUS-Rock containing lime.

CARBONATES—Ore containing a considerable proportion of carbonate of lead, or of rich silver.

CHIMNEY-The richer parts in lodes as dis-

tinguished from poorer ones.

CHLORIDES—A common term applied to

ores containing chloride of silver.

CLAIM—Ground held by a location. COBBING—Breaking ore for sorting.

COLOR—A particle of metallic gold found in the prospector's pan or horn after washing earth or pulverized rock.

CONCENTRATOR-Machine for removing

waste matter from mineral.

CONTACT—A junction of two kinds of rock, such as lime and porphyry.

CORD-A cord weighs about eight tons.

COUNTRY ROCK—The rock on each side of a vein.

CRIBBING—The timbers used to confine wall rock.

CROPPING-OUT-Mineral or rock rising to the surface.

CROSS-CUT—A level driven across the course of a vein.

DILUVIUM--A surface deposit of sand, gravel or loam.

DIP—The slope or pitch of a vein or mine. DRIFT—A tunnel; a horizontal passage underground.

DYKE-A wall-like mass of mineral foreign to

the general formation.

FACE—The end of a drift or tunnel.

FAULT—The displacement of a stratum or vein.

FISSURE VEIN—A crack or cleft in the earth's crust filled with mineral matter distinguished from other veins because it cuts all other formations instead of yielding to them.

FLOAT-Loose ore or rock detached from the

original formation.

FLUME—A pipe or trough to convey water.
FLUX—Substance used to promote the fusion of ores.

FOOT-WALL—Layer of rock beneath the vein. FREE-MILLING—Ores that will separate by simple methods.

GANGE-The waste stuff of an ore.

HANGING WALL—The layer of rock, or wall, over a lode.

HEADING-A vein of ore above the drift.

HORSE—A body of rock of same character as the wall-rock occurring in the course of the vein.

IN PLACE—A vein, or ore, in its original

position.

JIG-A machine for concentrating ore by means of water.

JUMP-Locating on another's claim.

LEVEL—A horizontal passage or drift into a mine from a shaft.

The Unexpected

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Happens.

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EMPLOYER'S LIABILITY

INSURANCE,

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UTAH.

LITTLE GIANT—A jointed iron nozzle used in hydraulic mining.

LODE, LEAD, LEDGE—A body of ore.

MILL RUN—A test of the value of a given quantity of ore.

ORES-Compound of metal with oxygen,

sulphur, arsenic, etc.

OUTCROP-That portion of a vein showing at

the surface.

PANNING—Separating gold from gange or gravel by washing.

PAY STREAK—The richest streak in the vein.

PATENT—The government's deed.

PINCH—Contraction of the vein.

PITCH-The slope or dip of the vein.

PLACER—A surface mine.

POCKET—A rich spot in a vein or deposit. PROSPECTING—Searching for mineral veins.

RESERVES—Mineral standing in mines between shafts and levels that will pay to extract.

RETORT-Amalgam after distillation; gold

combined with other metals.

SALTING-Placing foreign ore in the crevices of a vein.

SAMPLING WORKS—Works for sampling and determining the values obtained in ores; where ores are bought and sold.

SCHISTOSE—Granite rock having a slaty

structure.

SHAFT-A well-like passage into a mine.

SHIFT—A miner's work for one day.

SLUICES—Troughs in which ore is washed. SPIT—To light a fuse.

SPREADER-Timber stretched across a shaft or slope.

SPUR-A branch of a vein.

STAMP-MILL—A mill for crushing ores by means of stamps.

STOPING-Excavating the ore from the roof or

floor of a drift.

TAILINGS—The refuse left after washing ores containing metals not saved in the first treatment.

TRIBUTER—A miner working as a lessee.
UPRAISE--A shaft or winze excavated up-

wards.

WASH-Loose rock and dirt.

WHIM—A machine used for raising ore or refuse.

WHIP—Apparatus for hoisting ore from a shaft.

WINZE—An interior shaft sunk from one level to another.

Polors of Precious Metal Ores.

GOLD—Chiefly yellowish; varies to blue, brown, black, gray and white.

SILVER-Chiefly gray; varies to brown, blue,

green and black.

SILVER GLANCE—Blackish lead gray, metallic lustre, cuts red.

RUBY SILVER—Ruby red, reddish black,

and cuts red.

HORN SILVER—(Chloride), semi-translucent. BLACK SILVER—(Stephanite) iron black. GALENA—Looks like lead.

COPPER-Green, red, blue, grayish.

ZINC—(Blende) brown, yellow, black; (Zincite) steel gray.

CINNABAR-(Mercury) brilliant red crystals,

or different shades of brown and red masses.

· NICKEL—Brass color, gray to black.

TIN—Black, varying to gray. IRON—Black, brown, gray.

IRON PYRITES—(sulphuret) Goldish yellow

cubes that do not dissolve until burnt.

WHITE IRON—(arsenical pyrites), white shiney specs or splotches solvable in nitric acid.

MANGANESE—Black and Brown. HEMITITE—Black, brown, cuts red.

Utah Statistics.

The Territory of Utah was organized, September, 1850; the first state officers were elected in November, 1895; population of state, census of 1890, 207,905, and at present 280,000; capital, Salt Lake City, population 55,000.

GOLD AND SILVER PRODUCTION.

| Year. | Gold. | Silver-Ounces. |
|-------|------------|----------------|
| 1880 | \$ 165,773 | 3,783,566 |
| 1881 | 164,500 | 5,400,191 |
| 1882 | 186,926 | 5,435,444 |
| 1883 | 144,513 | 4,531,763 |
| 1884 | 119,305 | 5,669,488 |
| 1885 | 184,024 | 5,972,689 |
| | | |

| Year. | Gold. | Silver-Ounces. |
|----------------|-------------------|----------------|
| 1886 | 218,626 | 5,918,842 |
| 1887 | 235,869 | 6,161,737 |
| 1888 | 287,022 | 6,178,855 |
| 1889 | 516,232 | 7,147,651 |
| 1890 | 699,700 | 8,165,586 |
| 1891 | 749,427 | 8,015,223 |
| 189 2 | 788,521 | 8,967,656 |
| 1893 | 1,117,663 | 7,107,503 |
| 1894 | 1,127,961 | 6,534,182 |
| 1895 | 1,546,529 | 8,141,383 |
| To | otal \$8,252,096 | 103,131,761 |
| | PRODUCT BY COUNTI | ES. |
| Counties. | Gold. | Silver. |
| Beaver | \$ 14,717 | 507,500 |
| Juab | 568,941 | 3,517,166 |
| Millard | 27,491 | 900 |
| Salt Lake | 229,850 | 775,640 |
| Summit | 85,429 | 3,204,004 |
| Tooele | 605,631 | 121,071 |
| Washington | | 10,102 |
| Other Counties | 14,469 | 5,000 |
| | | |

DIVIDED PAYING MINES.

8,141,383

| Names. | No of Shares. | Par Value. | Dividends. |
|-------------------|---------------|------------|------------|
| Ajax | 300,000 | \$ 10.00 | 1,000,000 |
| Bullion-Beck | 100,000 | 10.00 . | 2,000,000 |
| Contennial-Eureka | 30,000 | 50.00 | 1,770,000 |
| Crescent | 600,000 | 25 00 | 280,000 |
| Dalton and Lark | 2,500,000 | 1.00 | 12,500 |
| Daly | 150,000 | 20.00 | 2,850,900 |
| Eureka Hill | 10,000 | 100.00 | 1,450,000 |
| Galenia | 5,000 | 100.00 | 600,000 |
| | | | |

\$1,546,528

| Names. | No. of Shares. | Par Value. | Dividends. |
|-------------|----------------|------------|------------|
| Horn Silver | 400,000 | 25.00 | 5,187,000 |
| Mammoth | 400,000 | 25 00 | 1,050,000 |
| Maxfield | 300,000 | 10.00 | 117,000 |
| Mercur | 200,000 | 25.00 | 450,000 |
| Ontario | 150,000 | 100.00 | 13,205,000 |
| Silver King | 150.000 | 20.00 | 562 500 |
| Utah | 100,000 | 1 00 | 137,100 |

This statement includes dividends paid up until April, 1896. Many close companies that have paid large dividends do not give out statements for publication, hence do not appear in above table, which would make a far greater showing.

Precious Materials.

Among the precious materials found in Utah, which the markets of the world constantly demand, are alum, antimony, asbestos, asphaltum, bismuth, barytes, borax, coal, cobalt, gypsum, iron, kaolin, gilsonite for varnish, teredo proof paints, lubricants and insulating compounds; nitre, manganese, marble, phosphates, plumbago, salt, soda, sulphur, zinc, onyx and every kind and grade of valuable building and lithographic stone, slate, valuable clays and mineral waters. The only mineral not known to exist in absolutely inexhaustible quantity is tin, and that metal is found in many places but not as yet developed to any great extent. Otherwise there is sufficient asphalt to pave the cities of the earth; sulphur mined absolutely pure (98 per cent), to

supply the markets of all countries for all time: miles upon miles of pure, solid gypsum from which 2000 tons of plaster of paris is made annually and that could be utilized for all the demands of art in alabaster for aeons of time; marble in every shade and color from white to black, and the same with the vari-hued granite; onyx as delicately tinted, quaintly mottled and vari-colored as the world has every produced, and some of it richer in design than the high-priced product of Old Mexico; more coal and iron than two states of the size of Pennsylvania could contain; mountains of salt and a sea from which enough can be evaporated daily to supply all humanity; pyrites of iron for the manufacture of sulphuric acid; kaolin of a fibre that will make the most delicate of eggshell china, and thus and so on without exaggeration Utah is the most prolific of all natural resoucres for the handiwork of man as applied to manufacture and commerce of any like area on the globe, and its every resource is yet in the very embryo of development.

The discovery of crude oil of a good gravity on the banks of the Green river is but the beginning of the opening of great petroleum fields that will add another valuable commodity to the commercial wealth of the State. The natural gas wells opened in Salt Lake County have for two years demonstrated their value, and are utilized by business firms, manufacturers and private families. There is no doubt but that beds of petroleum underlie these gas pock-

ets which will be developed in time.

In the Uintah country are vast deposits of gilsonite, mineral wax and elaterate that have a market for all that can be produced.

COAL AND COKE.

The principal coal fields in Utah are located near Coalville, Summit county, and at Castle Gate and Pleasant Valley in Emery and Carbon counties. However coal is found all over the State and about 500,000 tons are produced annually. Extensive development is pro-gressing, and the time is not far distant when the output will be doubled to supply the California trade. The coal beds of Utah cover about 5,000 square miles of already prospected area, with no limit to capacity for production. It is clean and hard in quality and adapted for long distance transportation.

About 50,000 tons of coke is made annually at Castle Gate, which is consumed by the smelters in

Salt Lake City.

IRON.

Iron is also found in plenty all over the state. Iron county is nearly all iron except the subsoil. The principal deposits aside from this are in Cache, Juab, Morgan, Salt Lake, Utah, Wasatch and Weber Counties. The Iron Mountain in Iron County contains 50,000,000 tons of magnetite and hematite ore. Near Iron City are belts of iron ore five miles wide and twenty miles long with outcroppings of from 100 to 500 feet of solid ore of the richest quality. Being near great coal measures, when transportation facilities are afforded, Utah will blast her ores and manufacture her iron and steel for railroad and all other purposes in which those metals are used for the entire trans-Mississippi country.

Production of Precious Metals.

The production of precious metals in Utah for the year 1895, as given by the U. S. Mint returns, show 75,000 ounces of gold and over 8,000,000 ounces of silver, the total value of which, with silver given its proper value, would have reached over \$12,000,000, but as it was the returns were barely half that amount. The silver came mainly from two counties, Juab producing 3,517,000 silver and 27,525 ounces of gold; Summit 3,204,000 ounces of silver; Tooele 29,300 ounces of gold.

The Ontario in Park City and the Bullion-Beck in Tintic each produced over a million ounces of silver; the Centennial-Eureka in Tintic comes next with 900,000 ounces; the Silver King in Park City output three-quarters of a million ounces; the Horn Silver of Frisco and Daly of Park City over a half million each, and the Eureka Hill and Gemini together produced over 700,000 ounces.

The Mammoth of Tintic and the Mercur of Camp Floyd each produced over \$250,000 in gold; the Centennial-Eureka \$175,000 worth, and the Old Jordan and Galena in Bingham, and the Marion at Camp Floyd, almost reached the hundred thousand dollar mark. Utah is now the third state in the production of silver, Colorado and Montana leading,

and the time is not far distant when the forty-fifth state in the Union will be a fair rival of the leaders in the production of the precious metals.

Mining Laws.

The mining laws in force in Utah and applicable to public lands of the United States therein, are found partly in acts of Congress, partly in the statutes of Utah, and partly in the local rules and customs of miners. The General Land office has also established rules which in practice should be complied with. Wherever the act of Congress speaks, it controls; where it is silent, the state legislation, the local rules and customs control provided they in nowise conflict with the Federal or State law.

In the following brief synopsis the Acts of Congress now in force will first be considered, then the statutes of the state. No attempt will be made to digest the decisions.

The Federal law applicable to this region is found for the most part under the following heads:

A-FEDERAL LAW.

1. U. S. mineral lands generally.

2. Lode laims; gold, silver, copper, etc.

3. Placer Claimes.

4. Miscellaneous.

5. Land office proceedings for patents, and adverse claims.

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Mining and General Practice.

85 COMMERCIAL BLOCK.

SALT LAKE CITY, UTAH

B-STATE LAW.

- Lode claims. 1.
- Placer claims.
- 3. Miscellaneous.
- 4. Procedure.

A-Federal Mining Law.

1-Mineral Lands of the United States.

(Chap. 6 of Title xxxii. of U, S: Revised Statutes A. C., May 10. 1882.)

Section 2318. Public lands valuable for minerals are reserved from sale under Homestead, Preemption or Timber Culture acts or otherwise than as mineral lands under express provisions of U.S. laws.

Section 2319. All valuable mineral deposits therein are open to exploration and purchase, and the lands containing same to occupation and purchase by American citizens or those having duly declared their intention to become such, under regulations prescribed by law and according to local customs and rules of miners applicable thereto and not inconsistent with U. S. laws.

Section 2346. Such mineral lands are excepted from certain land grants already made by Congress unless expressly included in the grant.
Sections 2341-2. Lands set apart as mineral,

but settled upon and found to be agricultural, may be set apart as agricultural and taken up as homesteads.

Section 2344. Nothing contained in this chapter shall be construed to impair in any way the rights or interests acquired under laws existing prior to May 10, 1872.

SCHOOL LANDS.

Act of Congress March 3, 1875—Sections 16 and 36, in each township, if such sections were not known to contain minerals when surveyed, or when Utah becme a state (date 1896) passed to the state as school lands, and are not open to exploration and purchase as mineral lands of the United States.

TIMBER ON MINERAL LANDS.

Act of Congress June 3, 1878—Timber may be cut from the public mineral lands of the United States by citizens of the United States, or bona fide residents of the State of Utah (other than railroad corporations, for building, agricultural, mining or other domestic purposses, subject to such rules and regulations as the Secretary of the Interior may prescribe for the protection of the timber and under growth and for other purposes. The Register and Receiver of the local land office are to report unauthorized cutting.

WATER ON MINERAL LANDS.

Section 2339. Vested water rights for mining

* * purposes shall be protected and rights

for ditches and canals for such purposes are confirmed; but person constructing ditches or canal is liable for damages done to any settler on the public domain.

Section 2340. Patents are subject to vested water rights, or rights to ditches and reservoirs used in connection therewith.

COAL LANDS.

Section 2347. Every person 21 years of age being a citizen of the United States, or having duly declared his intention to become such, and every association of persons so qualified, may upon application to local Register enter by legal subdivisions any qauntity of vacant U. S. coal lands not otherwise appropriated not exceeding 160 acres to each such individual, or 320 acres to each such association, upon payment to local Receiver of not less than \$10 per acre for lands situated more than 15 miles from any completed railroad, and not less than \$20 per acre for lands less than 15 miles from such road.

Section 2348. Preference is given to occupants, so qualified, who have opened and improved mine. Associations of not less than four persons, so qualified, having expended \$5000 in work and improvements, may enter 640 acres, including such improvements.

Section 2349. Claim under preceding section must be filed with Register within 60 days after date of possession and commencement of improvement, or within 60 days after township plat is re-

ceived at district land office.

Section 2350. Only one entry may be made by any one person or association; and no entry by an association whereof one or more members has made entry. Final proof and payment must be made within one year from time prescibed for filing claim under section 2348 otherwise lands are open to entry by any other qualified applicant.

Section 2351. In case of conflicting claims priority of possession and improvement, followed by proper filing and continued good faith, de-

termines preference.

Improvements made before March 3, 1873, are to be awarded as nearly as may be on division to parties having made same. The Commissioner of General Land office shall make regulations for carrying into effect Sections 2347-2351.

Section 2352. Rights which attached prior to March 3, 1873, are not to be impaired by preceding five sections, nor sale authorized of lands valuable

for mines of gold, silver or copper.

11.—Lode Plaims.

Possessory Title.

Sections 2319, 2322, 2324. Local customs, rules and regulations of miners, and State and Territorial regulations not in conflict with laws of the United States, govern possessory title.

DIMENSIONS AND DISCOVERY.

Section 2320. Mining claims on veins or lodes located after May 10th, 1872, shall not exceed 15 hun-

dree feet in length along vein, nor, in width, 300 feet on each side of middle of vein surface. No mining regulation shall limit any claim to less than 25 feet on each side of middle of vein surface, except where adverse rights existing May 10th, 1872, render such limitation necessary. Discovery of vein must be made within limits of claim before location. End lines shall be parallel.

STAKING AND RECORD.

Section 2324. The location must be distinctly marked on the ground so that its boundaries may be

readily traced.

The record of claim [location certificate] shall contain name of locator or locators, date of location and such description by reference to natural object or permanent monument as will identify claim.

What veins covered by location Apex; right to dip confined to departure from side lines within vertical planes through end lines. Right to dip gives no right to go on surface of adjoining claim.

Section 2322. The locators of all mining locations heretofore made or which shall hereafter be made on any mineral vein, lode, or ledge, situated on the public domain, their heirs or assigns, where no adverse claim exists on the 10th day of May 1872, so long as they comply with the laws of the United States, and with State, Territorial and local regulations not in conflict with the laws of the United States governing their possessory title, shall have the exclusive right of possession and enjoy-

ment of all the surface included within the lines of their locations and all veins, lodes and ledges throughout their entire depth, the top or apex of which lies inside of such surface lines extended downward vertically, although such veins, lodes or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical side lines of such surface locations. But their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as above described, through the end lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of such veins or ledges.

And nothing in this section shall authorize the locator or possessor of a vein or lode which extends in its downward course beyond the vertical lines of his claim to enter upon the surface of a claim

owned or possessed by another.

Note.—To claim right to follow dip outside side-lines the vein must be in place, within the lines of claim, and intersected by the end lines; though it has been held by some of the courts that when the vein is intersected on the strike by one of the end lines of the claim, the owner would be entitled to follow the vein in its dip confined within vertical planes drawn down through the end line intersecting the vein on its strike, and a parallel plane thereto drawn down through the side line where the vein on its strike departs from such side line; though this question has never been decided directly by the Supreme Court of the United States. No apex rights to dip outside side lines where vein on its strike crosses both sidelines: So decided March 5th, 1894, by U. S. Supreme court in King vs. Amy S. S. Cons. M. Co. 14 S. C. Ref. 510.

CROSS VEINS.

Section 2336. Where two or more veins cross or intersect priority of title shall govern. The

prior location is entitled to all ore or mineral within space of intersection, and subsequent location to right of way through space of intersection for convenient working of mine. Where two or more veins unite, prior location takes vein below part of union, including all all space of intersection.

Note.—The Colorado decisions are to the effect that this section applies to veins crossing on the strike, and the "space of intersection" is construed as the space of actual vein intersection. The courts of other states have held otherwise. Cross veins are apparently not included in the grant of side veins made in section 2322 (above) under the wording used in that section

TUNNELS.

Section 2323. Owner of tunnel driven to develop vein or for discovery of mines, is entitled to all veins discovered therein within 300 feet from its face on the line of said tunnel and not previously known to exist, to same extent as if discovered from surface. Locations of veins not appearing on surface, made on line of tunnel by other parties after its commencement and while it is being prosecuted with reasonable diligence, are invalid. Failure to prosecute work on such tunnel for six months is considered abandonment of all undiscovered veins on its line.

ASSESSMENT WORK.

Section 2324. On claims located before May 10th, 1872, ten dollars' worth of labor or improvements shall be expended annually, until patented, for each hundred feet in length. On claims located since May 10, 1872, one hundred dollars' worth of

improvement shall be expended during each assessment year.

Note.—Under special Act of Congress this requirement was satisfied for 1893 by filing with Recorder a certificate of intention to hold.

A. C. January 22nd, 1880—Period within which annual expenditure is required, begins first day of January after location of claim.

Section 2324. When claims are contiguous expenditures may be made upon any one claim for all.

A. C. February 11th, 1875—Work done in tunnel for development of lode shall be considered as expended on lode.

Section 2324. Failure to do such assessment work is deemed abandonment, and throws claim open to location by others, provided owners have not resumed work before such new location. Co-owners failing to contribute proportion of expenditures forfeit interest in claim to co-owners doing work, on latter giving personal written notice, or notice by 90 days publication in newspaper published nearest the claim.

III.—Placer Claims.

Section 2329. Claims usually called "placers" including all forms of deposits except veins of quartz or other rock in place, are open to entry and patent as placers, under similar conditions and proceedings as for lode claims

Section 2329, 2331. On surveyed lands, location and entry shall conform as nearly as practical to legal subdivisions.

SIZE OF PLACER CLAIMS.

Section 2330, 2331. Legal subdivisions may be subdivided into 10 acre tracts, and contiguous of any size even though smaller than 10 acres, may be entered jointly. But no person or association shall enter more than 20 acres, for each individual claimant.

SURVEY.

Section 2331. Where placer is on surveyed lands and conforms to legal subdivisions, no further survey or plot is required. Where placer claims cannot be conformed to legal subdivisions, survey and and plot shall be made as on unsurveyed lands.

LIMITATION.

Section 2332. Possession and working for time required by local statute of limitations establishes right of patent, if there is no adverse claim.

PLACER CONTAINING VEIN OR LODE.

Section 2333. Where placer includes lode, and applicant is in possession of both, application for patent shall so state; patent then issues for both placer and lode; lode and 25 feet of surface on each side shall be paid for at rate of \$5 per acre; remainder of placer and also any placer not containing lode, at rate of \$2.50 per acre, When existence

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of lode within boundaries of placer is known, failure to include it in patent application is construed as declaration that applicant has no right to it, and same is subject to location by other parties. When existence of lode is not known, patent to placer conveys all mineral within boundaries.

IV.-Miscellaneous.

Mill-Site.

Setcion 2337. Five acres of non-mineral land not contiguous to lode, and used by proprietor of lode, may be patented as mill-site by said proprie tor, if included in application for said lode, provided there is a mill or reduction works of the value of not less than \$500. Owner of quartz mill or reduction works not owning mine in connection therewith may also obtain patent for his mill-site. Such mill-sites shall be paid for at rate of \$5 per acre.

TOWN SITES.

Section 2386. A. C. March 3, 1891.—Town sites entries may be made by incorporated towns and cities on mineral lands of the United States, but no title shall be acquired by such towns or cities to any vein of gold, silver, cinnabar, copper, lead, or to any valid mining claim or possession held under existing law. When mineral veins are possessed by within limits of town, and such possession has been recognized by local authority or by

U. S. laws, title to town lots shall be subject to such possession and necessary use. Such vein may be patented, but without surface ground, unless mineral title antedates adverse possession of surface.

AMOUNT OF MINERAL LANDS NOT LIMITED.

A. C. March 30, 1891.—Act of August 30, 1890, which prohibits any one person from acquiring title to more than 320 acres of public land shall not include mineral land.

HIGHWAYS: RIGHT OF WAY.

Section 2477. Right of way for construction of highways is granted over public lands not reserved for public use.

SURVEYS.

Section 2327. The description of lode claims upon surveyed lands shall refer to lines of public surveys, but need not conform therewith.

SURVEYORS AND FEES.

Section 2334. The Surveyor General may appoint as many deputy surveyors as may apply for appointment. Expenses of surveys of lode claims and sub-divisions of placers into less than 160 acres, and publication of notices shall be paid by applicants. The Commissioner of the General Land Office may establish maximum charges for surveys and publication.

V.—Land Office Proceedings.

Application; Adverse Suits; Receivers Receipt; Protest; Patent.

Section 2325. Application for patent under oath, stating compliance with law, is to be filed in proper land office accompanied by plat and field notes of claim made under direction of U. S. Surveyor. General, showing accurately boundaries of claim (or claims in common) applied for which boundaries shall be distinctly marked by monuments on the ground. Copy of plat and notice of application are to be posted in conspicuous place on claim before filing application; and affidavit of two persons that notice has been duly posted is to be filed in Land office with copy of such notice. The Register of the Land office thereupon posts in his office notice of application and publishes it for sixty days in a newspaper desginated by him, published nearest to the claim. The claimant, before or during period of publication files certificate of U. S. Surveyor General that \$500 of labor has been expended or improvements made on claim by claimant or his grantors, and that the plat and description of claim is correct. Claimant's own affidavit that plat and notice remained posted on claim during period of publication is then filed at expiration of period of publication and if no adverse claim has been filed during the sixty days from first publication it is assumed that applicant is entitled to patent upon payment of \$5 for each acre or fractional part thereof.

Note—A filing fee of \$10 in cash, with publishers agreement and proof of citizenship should accompany each application. Several claims of the same applicant may be included in one application. Certified copy of location certificate and abstract of title, bringing title down to and including date of application, should also be filed in the Land office before expiration of the period of publication.

APPLICATION BY AGENT OR ATTORNEY IN FACT OF NON-RESIDENT.

A. C. January 22nd, 1880—If claimant for patent is not a resident of or within the land district wherein claim is situated the application for patent and required affidivits may be made by his authorized agent conversant with the fact [within said district]: or

A. C., April 26th, 1882—Any oath or affidivit of citizenship may be made by claimant himself before clerk of any court of record or notary public

of any State or Territory.

PROOF OF CITIZENSHIP ETC.

Section 2321. Proof of citizenship may consist of affidavit of individual; in case of an association, of affidivit of authorized agent; and in case of corporation, of certified copy of charter or certificate of incorporation.

Note.—Applicant for patent must be an American citizen or person having duly declared his intention to become such, or a domestic (not foreign) corporation.

ADVERSE CLAIM.

Section 2326. Where an adverse claim is filed during period of publication, upon oath of person making same, showing nature, boundaries and extent of such claim, all patent proceedings, except publication and proof thereof by affidavit, shall be stayed until controversy shall have been decided by proper court or the adverse. Adverse claimant must, within 30 days after filing his adverse claim, begin suit in competent court in Utah District court; or, in special cases, the Federal Court determine right of possession, and prosecute suit with reasonable diligence. Failure in either respect is a waiver of the adverse. After judgment, party entitled to possession may file certified copy of judgment roll in Land office, with certificate of surveyor General that requisite expenditure has been made, and pay \$5 per acre for the claim or portion thereof awarded him by said judgment, and proper fees. The papers are then certified to General Land office for patent to issue. If judgment is that several parties are entitle to distinct portions, patents shall issue to them according to their respective rights.

Note.—One of several co-owners may adverse for himself and co-owners. The adverse claimant must have the qualifications of citizenship, etc., required of an applicant for patent.

TITLE IN NEITHER PARTY.

A. C. March 3rd, 1881.—If judgment is that title to ground is in neither party, no costs shall

be allowed and claimant shall not be entitled to patent until he perfects his title.

Note.—Land Office fee to accompany each adverse is \$10 in cash—not check or draft.

ADVERSE BY AGENT OR ATTORNEY IN FACT.

A. C. April 26th, 1882.—Adverse claim may be verified by agent or attorney in fact [within Land District] cognizant of facts. If adverse claimant resides, or is out of district, he may verify claim before clerk of court of record or a notary public within the State or Territory where he may then be.

POSSESSORY TITLE THE ISSUE.

Section 910. Possessory action for recovery of mining title, or for damages to same, shall be adjudged by law of possession, notwithstanding that paramount title is in United States.

RECEIVER'S RECEIPT ENTRY.

Section 2334; And Land Office Rules, Sections 41-42. The Land Office rules provide for the issue of a Receiver's receipt to the applicant when on expiration of the 60 days' period of publication no adverse has been filed, or the adverse if filed has been waived by the adverse claimant or decided against by the competent court. This receipt is delivered against payment for the premises claimed at the rate of \$5 for each acre or fraction thereof, and the filing of sworn statements of due publication and posting throughout statutory period (60 days) of notice of application, and also of charges,

fees and money paid for publication and surveys, and to Register and Receiver. The claim is then said to be "entered' for patent; and the papers are forwarded to Washington for examination, approval and issue of patent.

PROTEST.

Section 2325. If no adverse claim is filed in Land Office within 60 days after day of first publication (exclusive of that day), no objection from third parties to the issuance of patent to the applicant therefor shall be heard except upon protest based on allegations that applicant has failed to comply with requirements of law [e. g., failure to disclose mineral, to make \$500 worth of improvements, etc.] Protesant should show his interest in the premises.

AFFIDAVITS; TAKING OF TESTIMONY IN CONTESTED CASES AS TO CHARACTER OF LANDS.

Section 2335. All affidavits required by law may be verified before any officer authorized to administer oaths within land district where claim is situated, and in cases of contest as to mineral or agricultural character of land, testimony and proofs may be taken before such officer on personal notice of ten days to opposing party; if such party cannot be found, thirty days' notice by weekly publication shall be given in newspaper designated by Receiver as published nearest claim.

PATENT.

The patent is a deed from the United States of

the piece of land to which applicant has established possessory title. It includes all mineral therein subject to certain exceptions, e. g., dip underneath the patented claim of a vein apexing in adjacent claim and discovered prior to entry for patent; known lode in patented placer claim; cross veins, etc. The patent is issued in the name of applicant, but carries title to the person to whom he may have made conveyance prior to issuance. The patent is conclusive when valid on its face and issued in accordance with law. Conditions or exceptions not authorized by law cannot be inserted by the Land Office in the patent.

Section 2338. The local legislature (e. g., that of Utah) may provide rules for working mines, involving easements, drainage, etc., and these conditions shall be fully expressed in the patent.

Section 2332. Any lien which attached to mining claim prior to patent is not impaired.

State Mining Laws.

Chapter III. of the Compiled Laws of Utah contain the Territorial mining laws which were adopted in the State Constitution in 1895, and such subsequent laws enacted by the first State Legislature of 1896, are also added.

WIDTH OF CLAIM.

Section 2790 provides the same as to width of claim as the U. S. laws.

DEFACING NOTICES.

Section 2791. Any person or persons who shall wilfully or maliciously tear down or deface a notice posted on a mining claim, or take up or destroy any stake or monument marking any such claim, or interfere with any person lawfully in possession of said claim, or who shall alter, erase, deface or destroy any record kept by a mining recorder, shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than \$25 nor more than \$100, or by imprisonment for not less than ten days nor more than six months or both by such fine and imprisonment. Justices of the peace in their respective counties shall have jurisdiction of such offences.

UNLAWFULLY EXTRACTING ORES.

Section 2792. Any person wrongfully entering upon any mine or mining claim, and carrying away ores therefrom, or extracting and selling ores from any mine, being the property of another, shall be liable to the owner or owners of said ore for three times the value thereof, recoverable by an action at law; and should the plaintiff file his affidavit that the defendant did unlawfully take ores, the defendant may be arrested and held to bail, as in cases for the recovery for the possession of personal property unujstly detained.

MINERS' LIEN.

Section 2793. Any person or persons who shall perform any work or labor upon any mine, or furnish

any materials therefor, in pursuance of any contract made with the owner or owners of such mine, or of any interest therein, shall be entitled to a miner's lien for the payment thereof upon all the interest, right and property in such mine by the person or persons contracting for such labor or materials at the time of making such contract; said lien may be enforced in the same manner and with the same effect as a mechanic's lien, as provided by the laws of Utah.

LOCATION NOTICES PRIMA FACIA EVIDENCE.

Section 2794. Copies of location of the mines, lodes and veins, and of tunnel sites recorded in the several mining districts, and of the mining rules and regulations in force in the several mining districts, in like manner recorded, shall be receivable in all the courts of this Territory (now State) as prima facia evidence of such notices, rules and regulations, Provided, The recorder of the district shall certify under his hand and seal that such copies are full, true and perfect copies from the records in his custody. The seal of office of the mining recorder so certifying affixed to such certificate shall be prima facia evidence of the fact of the election and qualification and official character of such mining recorder.

RECORDING MINING RULES,

Section 2795. It shall be the duty of the County Recorder of the several counties of this Territory (now State) to record the mining rules

and regulations of the several mining districts in their respective counties; and when so recorded, certified copies thereof shall be received in all the courts of this Territory (now State) as prima facia evidence of such rules and regulations.

FEES.

The mining recorders of the several mining districts shall be allowed the same fees for recording and making copies of any records in their custody as are now allowed by law for the service of county recorders * * * and are in all other respects likewise controlled by section 20 of the act entitled "An act to regulate fees and compensation for official and other services in the Territory of Utah," passed February 20, 1874.

Section 2797 provides that mining recorders are public officers, and are required to keep a seal.

Section 2798 provides that when there is a vacancy in the office of mining recorder, or that he shall move from the district, or is disqualified, his records shall be deposited with the county recorder.

Section 2799 provides that mining recorders

shall give bond in the sum of \$1000.

Section 2800 provides that recorders shall be responsible for the acts of their deputies.

SALE OF MINERAL LANDS FOR SCHOOL FUND.
ARTICLE X, SECTION 3.

Section 3. The proceeds of all lands that have been or may be granted by the United States to this State for the support of the common schools, the proceeds of all property that may accrue to the State by escheat or forfeiture, and all unclaimed shares and dividends of any corporation incorporated under the laws of this State, the proceeds of the sale of timber, minerals, or other property from school and State lands other than those granted for specific purposes, and the five per centum of the net proceeds of the sales of public lands lying within the State, which shall be sold by the United States subsequent to the admission of this State into the Union, shall be and remain a perpetual fund, to be called the State school fund, the interest of which only, together with such other means as the legislature may provide, shall be distributed among the several school districts according to the school population residing therein.

REVENUE AND TAXATION. ARTICLE XIII, SECTION 4.

Section 4. All mines and mining claims, both placer and rock in place, containing or bearing gold, silver, copper, lead, coal, or other valuable mineral deposits, after purchase thereof from the United States, shall be taxed at the price paid the United States therefor, unless the surface ground, or some part thereof, of such mine or claim is used for other than mining purposes, and has a separate and independent value for such other purposes; in which case said surface ground, or any part thereof, so used for other than mining purposes shall be taxed at its value for such other purposes, as provided by law; and all the machinery used in mining, and all property and

surface improvements upon or appurtenant to mines and mining claims, which have a value separate and independent of such mines or mining claims, and the net annual proceeds of all mines and mining claims, shall be taxed as provided by law.

LABOR.

ARTICLE XVI-SECTIONS 3, 4, 5 AND 6.

Section 3. The legislature shall prohibit: First. The employment of women or of children under the age of fourteen years in underground

mines.

Second. The contracting of convict labor.

Third. The labor of convicts outside prison grounds except on public works under the direct control of the State.

Fourth. The political and commercial control

of employees.

Section 4. The exchange of black lists by railroad companies or other corporations, associations,

or persons is prohibited.

Sectin 5. The right of action to recover damages for injuries resulting in death shall never be abrogated, and the amount recoverable shall not

be subject to any statutory limitation.

Section 6. Eight hours shall constitute a day's work on all works or undertakings carried on or aided by the state, county, or municipal governments, and the legislature shall pass laws to provide for the health and safety of employees in factories, smelters, and mines.

Manufacturing Minerals.

Up to date the following minerals used in manufactures and the trades not classed as precious, are found in commercial quantities in Utah, and are produced to a greater or less extent according to demand:

Actinolite Agatized Wood Albite Almondite Amathyst Anthraconite Aragonite

Arsenolite Arsenopyrite Angite

Barite Basalt

Bird Guano

Bitumen.

Blue Vitrol Bole, in varieties Calcite, in varieties

Colecpar Cats-eye Opal Chalcedony Chalybite

Agate Alabaster

Alum in varieties Amphibole in varieties Anglesite or Lead Sulphate

Apotite

Argentite, or Sulphide of Silver Argentiferous Galena

Asbestus

Atacamite, or Chloride of

Copper

Azurite, or Copper Carbonate

Barytocalcite Biolite

Bismuth

Blende, or Zinc Sulphide

Bog Iron Ore

Bornite, or Purple Copper Bosjemanite, or Manganese

Alum

Calamine, or Zinc Silicate Cerargyite, or Silver Chloride Cerussite, or Lead Carbonate

Chalcanthite, or Copper

Sulphate

Chromite Chrysolite Cinnabar Dendrite Dolomite Epidote

Chalcocite, or Vitreous Copper Chalcopyrite, or Copper Pyrites Chrysocolla, or Copper Silicate Cuprite, or Red Copper Ore Dog-tooth Spar (Callcte) Embolite, or Chlor-Bromid Silver

Erubiscite Floss Ferri **Fanklinite**

Epsomite Feldspar, in varieties Freieslebenite, or Gray Silver

Galenite

Ore Fullers Earth Garnet, in varieties

Glauberite

Geyserite Halite, in varieties Horn Blende

Gray Copper Ore Hematite, in varieties Horn Silver, or Cerargyrite

Hydrargillite Hydrosteatite Iron Pyrites Iron Vitriol Tet

Hydrosiderite Iron Ochres Jasper, in varieties

Lava Lignite, in varieties Limonite or Iron Ore Limarite, or Cuper-

Lodestone, or Magnetic Iron

Kaolinte, or Porcelain Clay

Hydrocuprite, or Copepr Ore

ous Anglesite Magnesite Magnetite

Malachite, or Copper Carbonate Marcasite, or White Pyrites Miargyrite, or White Ruby

Marl, in varieties.

Silver

Mica, in varieties

Micacrous Hematite, or Iron Ore

Mispickel Moss Agate Mineral Wax, see Utahcerite

Molybdate of Lead

Nitre Nitro-Calcite Obsidian Olivine Onyx Oolite

Pea-stone, see

Pisoilte Phosgenite

Phenacite Pisolite Plumbago

Pyroxene, in varie-

ties Quartz, in varieties

Radiated Calcite Rock Salt Rose Quartz Saltpeter Sard Satin Spar

Siderite Smoky Quartz Soda, Carbonate Specular Iron Spinel

Satalctites Sulphide of Silver Tourmalin

Muscovite, or Mica Nitro-Glauberite Ochres, in varieties Opal, in varieteis Opolized Wood

Ozocerties, see Utahcerites Parafine, Native see, Utahce-

rite Claytoni Petrified Wood

Pickeringite, or Magnesia Alum

Prase, or Green Quartz Proustite, or Ruby Silver Pyrites, in varieties Pyrargyrite, or Ruby Silver Pyrolusite, or Manganese Ore

> Pyromophite, or Lead Phosphate

Ribbon Jasper

Ruby Silver, see Pyrargyrite Ruby Copper, see Cuprite

Sal Ammoniac Sardonyx

Selenite, or Transparent

Gypsum Silicious Sinter

Smithsonite, or Zinc Carbonate

Soapstone, in varieties

Sphalerite, or Zinc Blende Stephanite, or Black, Birttle

Silver Ore

Stibnite, or Antimony Ore

Sulphur, in varieties

Topaz, white, yellow and blue

Trachyte Tremolite

Utah Mineral Wax

Velvet Copper Volcanic Glass Witherite Wulfenite Zinc Blende Zinc Sulphide

Tufa, in varieties Talc, in varieties

Tetrahedrite, or Gray Copper

Ore

Vitreous Copper Ore Volcanic Scoria

Wad, or Manganese Ore Zeolites, in varieties Zincite, or Zinc Oxide

Mining by Electricity.

The development of electrical currents by the application of existing water powers is destined to prove a most potent factor in the operation of mines in Utah. With the exception of the vast region known as the Deep Creek District, so far removed from effective streams, no conspicuous camp in Utah is so remote that electrical power cannot be brought to bear upon the development of its mines.

While the streams are not generally large their fall is very rapid, so as to permit of their use several times within a short distance. The Big Cottonwood is a case in point. The Salt Lake Street Railway Company is behind a corporation known as the Utah Power Company for the transmission of electrical currents with which to operate its extensive street transit system in Salt Lake City. The Big Cottonwood Power Company is already furnishing power for the illumination of the Salt Lake streets. Mr. Frank Gillespie is at work developing a water power to generate electricity that will be utilized in supplanting coal in Bingham Canyon—across the valley and in the mountains on the opposite side from those in which the stream rises. Each of these plants takes the water where the other drops it, and so the power may be increased almost without limit. On this same stream the Maxwell Mining Company, Mr. W. F. James managing, is putting in a plant for the purpose of getting compressed air with which to drive its drills, and do much of the work now accom-

plished by slower and more expensive means.

In the Little Cottonwood Canyon, some six miles south of the Big Cottonwood, the same character of work is going on. At this point the Cottonwood Water-Power and Electric Company (Limited), of London, is at work, and by the time this book is issued will have a large force of men employed. This company is fathered by Mr. Frank Gillespie, and has laid out plans for the development of two 3,000 horse power plants, the electricity generated from which will, like that to be created in Big Cottonwood, be carried to Bingham, to Park City, and to such manufacturers in the valleys as may need it; and the expectation is that there will be many new and some extensive industries started up as a result of these vast water power developments now progressing in this vicinity. The intention of the corporation named is later to divide the stream into three equal parts, and by reason of the rapid fall to gain still another 3,000 horse power. Still later, by a system of

storage and the development of springs known to exist along the lines of the Little Cottonwood, it is believed that at least 6,000 more horse power can be produced. This, at a minimum estimate, will give this company 15,000 horse power from this stream alone. It goes without saying that the mines of Alta, the once-famed, which are once again showing signs of life, will utilize this power, as will the new mines now making such promising showings in the Big Cottonwood take advantage of the electric current to be had in that Canyon. The Pioneer Electric Power Company is spending a million dollars in Ogden Canyon to generate a tremendous electric current there of thousands of horse power, which will yet be utilized in Salt Lake City and in the mines now being opened between Salt Lake and Ogden, and in the neighborhood of Ogden. At the same time extensive water powers are being developed in Provo Canyon, the electric currents generated from which, besides furnishing power to Provo, locally, will also be transmitted to Mercur—where it will supplant coal-and to the vast and wonderful district of Tintic, where water is scarce, and electric currents must prove a blessing.

So it is all along the line—in Sevier County, in Beaver County, in Tooele County, and Sanpete County, in the Uintah region, in Cache County, when its great mines shall have attained that distinction which development is destined to give them; so also in Morgan and Davis Counties, no less than in Wasatch and in Summit—in which the famed Park City Mines are situated. With the

single exception the Deep Creek region, every mining district can be brought within the economizing effects of electricity generated by a costless natural force.

When the necessary power to drive drills, to hoist the ores, to lift the water which deep mining in wet districts inevitably develops, as well as supplying force for the running of stamp mills, is estimated, the promised saving runs beyond conception. And why not transmit the ores by this same power? Who can estimate how far the cost of production will be reduced, what mines now shut down because of the debased price of metals may be opened when this new force, now so rapidly being developed, shall have reached a point where it becomes a factor in the economic production of minerals in the great belts of Utah?

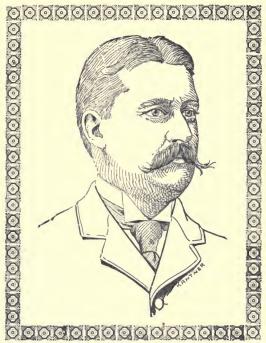
And among the savings to be figured upon with, it is true, less assurance, is the reduction of ores by electricity. While not yet known to have been developed to a point that is practicable, who may say that the separation of the minerals from the ore and the segregation of the different metals into their distinctive classes by electricity is not

only possible but probable?

The first Horn silver found in Utah was discovered by S. R. Bebee, in East Canyon, a nugget weighing about 36 ounces, and almost entirely pure.

February 13, 1871, the first smelting works at Bingham started up.

Rio Grande Western Railway.



FRANK A. WADLEIGH, General Passenger and Ticket Agent, Salt Lake City.

Utah's most important railroad is the Rio Grande Western Railway—at least that progressive corporation has been closely identified with the

growth and development of the territory since May, 1883, when the last rail connecting the East with the West was laid. It begins and ends in Utah, except that small part of the main stem which dips into the Centennial State to join forces with its eastern connections. A brief outline of its history is all this space will permit, but in that short delineation it will be the purpose to place before the reader the fact that the Rio Grande Western Railway has made itself by building Utah. It has been sufficiently enterprising to realize that in the ambition, purposes and development of this great state lay its own success. The railroad, therefore, has always joined hands with the elements that have led in the prosperity of the State. It has been a matter of conscience with the officials of the company that to develop the natural resources of the State their efforts must lie in the direction of reclaiming the vast arid regions-and while it must be admitted that the railroad is not the result but the very means of civilization, and that the penetration of the desert with these drastic threads of steel would naturally result in the ultimate reclamation of all available soil and resources - nevertheless, these men of the Rio Grande Western have encouraged and fostered every enterprise, every hope, every thought, until now the State has its diversified abundant resources in the trend that leads to perfected development.

The Rio Grande Western Railway was not the first to push its way into the desert and valleys of Utah, nor is it the last. Others will come, but while we are waiting the Rio Grande Western is

silently forging through the valleys and passes in its onward march to the sea. Its San Pete and Sevier Branch, completed to Manti in December, 1890, to Salina in July of the following year, to Richfield in June, 1896, and now in course of construction to Marysville, is perhaps the only line of railway extension now being built between the Missouri River and the western coast. The Rio Grande Western also has a branch line in actual course of construction extending from Provo to Park City, with a probability of being pushed into the Uintah Indian reservation. The total mileage of the Rio Grande Western is not great-it has but 570.9 miles in its system, but its branches to Eureka and the Tintic Mining District (completed in December, 1891), to Bingham, to Scofield and to Sevier, thread the valleys of the State, making it possible for the husbandman to market his goods and the miner to sell his product. This little line of railway has kept abreast of the times in other ways. Its road bed and equipment have been fashioned after the established successes of its older allies of the east. All modern appliances for the safety, convenience and comfort of its patrons are ferreted and adjusted to its requirements.

If the future of a new state is dependent upon the enlargement, liberality and aid of its transportation facilities and influence, then the young State of Utah with an organization of the character of its greatest railroad, may front the future without tear

of disappointment.

Many of the fine half-tone cuts which embellish this book, and especially those of the Mercur district, are published through the courtesy of the Rio Grande Western Railway, whose General Passenger Agent Mr. Frank A. Wadleigh has done more to advertise the great natural resources of Utah, and promote the general interest, than any individual or corporation in the State.

Meaning of 16 to 1.

Sixteen to one means the ratio that should exist between gold and silver as money. It means that in the United States at least, in all the world, if possible, sixteen ounces of silver shall be the equal of one ounce of gold; that sixteen ounces of silver shall pay as many debts, purchase as many articles of necessity, procure as much of the luxuries of life as one ounce of gold. It means that there shall be no legal choice between the debtor and the creditor, between the buyer and the seller, between the producer and the consumer, as to which shall pass as the equivalent of the debt paid, the article sold or the thing purchased—whether it be sixteen ounces of silver or one ounce of gold.

The erection of the first smelter in Utah began June 11, 1870, by the Woodhull Brothers on Little Cottonwood Creek. On the 6th of August following they exhibited 5,000 pounds of bullion as the first run of the smelter.

Preamble to Mining.

The economic resources of nearly every county in Utah are quite identical as regards mineralization, owing to the fact that they are mountainous as a rule, and all the mountains contain mineral zones of one character or another, not all alike by any means, but all containing precious metals.

The Mexicans were the first miners known in Utah, but the extent of their operations can never be known, as they filled up the excavations after having extracted the ores or having abandoned their mines to enter the more profitable trade of slavery. Nothing is known as to the time or the period in which what is now the State of Utah was mined by the Mexicans, who packed their ores all the way to Santa Fe to be smelted. The facts are evidenced by a remarkable discovery made in Kamas Prairie in the Weber Valley, in August, 1870, by a party of mine prospectors. They came upon a sort of a hole filled with loose dirt, and their curiosity being aroused, they excavated it, and opened up an old shaft sunk years before by the Mexicans. The hanging wall of the vein had been cut by steel tools, and a series of steps in the

earth led down into the shaft, by which method the debris was removed from the mine. From the bottom of the shaft a tunnel or drift ran for a great distance along the vein. Some of the rubbish was removed, among which were found several specimens of good silver ore.

In 1852 one of a party of Mexicans was arrested for kidnaping Indians for the purpose of reducing them to slavery in Mexico. The Mexican confessed to General William H. Kimball, deputy marshal, that Indian slave trading was the most profitable business he had been in since he stopped packing ore from a point 50 miles from Provo Fort to Santa Fe. Provo Fort is on the Timpanogas River, and in the vicinity of where the ancient mine was discovered in the Weber Valley. Several like discoveries have since been made.

The experiences, favorable and unfavorable, of other and older, or if not older, more fully developed mining camps of the west, has made mining in Utah a matter approximating a fixed science. Considering the limited time that Utah mines and minerals have been before the world as a business proposition, no field has awakened more earnest interest by men of the very highest professional reputation, who have been so willing to hazard their money along with their judgment in the guarded ventures that must be taken in even the most rational con-

jectures of mining. For almost a half-century it has been known that the alluvial wash all over Utah has contained the golden fleece, and for over thirty years the treasure-vaults of her mighty mineral veins have yielded up their treasures of every precious and base metal known. The whole of Utah has shown to hold beneath her rugged surface a natural treasure-vault which legislation cannot make less valuable nor centuries exhaust. Since July, 1893, the silver and lead industry of Utah has suffered the same paralysis coincident with other mining states, some of which met almost total annihilation of that industry, but with them, turned their attention to the development of gold deposits, and with a noiseless and steady development, without the blare of trumpets or newspaper buncombe, has reached results that naturally seem incredible, made along the lines of scientific and well defined exploration.

Since the pioneers first entered the Great Salt Lake Valley mining, until recently, as an industry had been discouraged by the dominant people. They justly encouraged agriculture and horticulture as the surer and safer source of livelihood, and the wisdom of this is most strikngly shown throughout this vast and glorious commonwealth. But a few ventured after the hidden treasures in the numerous

mountain chains, and have been most munificently rewarded. For over thirty years there has been development, and from some of the mines untold wealth has been extracted. But in the cold light of facts all the producing mines of Utah up to ten years ago could almost be counted upon the fingers of both hands, and the Congressional crushing given silver lessened even this number. It was then that the silver ledges were abandoned and the miners went prospecting for gold, and discovery followed discovery so rapidly that today there are areas, miles in extent, known to contain fabulous deposits of gold that have stirred the life's blood not only of Utahians but of the entire Intermountain country, until the eyes of the east, and even foreign nations, are turned full of no uncertain meaning to Utah. With so little development Mercur stands without a parallel in mining history in her exposed wealth—a gold area eight by fifteen miles in extent, the largest and richest known in the world, and whose values are shipped to mill from the very surface to great depths, all over this vast gold zone. Unlimited wealth lies awaiting intelligent investment now, and it will require fully fifty years to even prospect the mineral area of Utah. Every precious and common mineral known is found in Utah, and found in abundance and easy of access

which can be said of few other states or countries in the world, and the continual new discoveries made in all parts of the state warrant the conservative statement that Utah is upon the eve of the greatest activity in gold mining ever known in the West. Already some of the most largely interested mining men of Montana, Nevada, Idaho, Colorado and California have made Utah their headquarters and are investing themselves in property as fast as they can procure ground in the mineral fields thus far discovered. This fact speaks louder than words of the true value of the country as estimated by mining men of means. While the history of mining is full of inexplicable anomalies, and the geologist is more times wrong than right on his "formations," Utah has never suffered with sporadic mining booms, and no camp has yet been dubbed "worthless," every field opened up proving to be as lasting as the eternal hills. The possibilities of these treasure zones, with the wealth already disclosed, and that which lies deeper and still concealed, is quite beyond human calculation, but conservative experts are unanimous that years of development will only increase favorable showing. Every day the hardy prospector sees the transition of his prospect into a mine. The glad tidings of new discoveries are of hourly occurrence, and thus, as time passes, the secrets of the earth are surrendered to the hero of the pick and drill.

Pioneer and Recent Mining Camps.

Among the pioneer and recent camps not mentioned under special heads, where great producing mines claim individual distinction, may be mentioned Alta, Big Cottonwood, American Fork Canyon, Frisco, Ophir, Stockton, Silver City, Silver Reef, Diamond, Dry Canyon and Marysvale. There are many other of more or less repute that claimed distinction in the long ago. The more recent districts and camps not otherwise mentioned are Deep Creek, La Plata, Line district in Western Iron County; Newton district in Eastern Beaver County; Detroit and the Skull and Rush Valleys. There are dozens of individual and group locations that are working out a prosperous destiny.

Up and along and through all the canyons in the mountains contiguous to Salt Lake City the wily prospector is found omnipresent, and all are meeting with the success of striking it rich. Up City Creek canyon, within two miles of the the Salt Lake postoffice a gold vein has been opened that assays \$20 in gold to the ton, and this vein and others are all clearly defined on both sides of the canyon. The same can be as truthfully said of Dry and Red Canyons, where rich discoveries have but recently been made within the limits of Salt Lake City.

Alta Mining District.

The Alta Mining District is in Salt Lake County, and was at one time the center of the Little Cottonwood mining district. It is situated near the summit of Little Cottonwood Canyon, at the foot of the once famous Emma Hill. At one time, in the halcyon days of the first mining furore, Alta was a populous and influential camp. In the spring of 1878 it was about wiped off the map of creation by a disastrous fire, and it still remains quite buried in its own ashes. It is located seventeen miles from Sandy, and twenty-eight miles from Salt Lake City by rail via the Rio Grande Western Railway. The great impetus given mining in Utah in 1895 and 1896 has done much toward reviving the industry in the Alta district, and many old, abandoned properties have been relocated and development on modern lines started. The once famous Emma, and Flagstaff mines, and many others will be heard from at no distant day. It bids fair to revive the old days of prosperous mining.

Rache and Rich Counties.

So far but one mining district of any note has been organized in Rich County, the Garden City District, of which Mr. C. S. Vaterlous is recorder. This district embraces the Rich-Cache and other mines. It was organized Dec. 1st, 1894. The bylaws require by amendment adopted April 14, '96,

that all cliams must be re-staked by the 1st of July, '96, so that the lines of each claim could be clearly traced. The penalty not to comply with this requirement involves, by the local by-law, a forfeiture of the claim. The boundaries are the Idaho line on the north, the dividing line between Rich and Cache counties on the west, Cherry Creek and Meadowville road on the south, and the west shore of the lake on the east. Besides the Rich-Cache the most noted claims are the Eldorado at Swan Creek, and the Copper King, both of which are developed to a depth of from 80 to 150 feet. Other claims are the Argosa, the Black Bess, the Raymond and the Champion, the Wild Goose, Grey Eagle, Blue Bird, etc. Copper is the prevailing mineral shown in all these claims, and the surface croppings are very encouraging.

Besides these are several claims over the line in Cache County, in which silver and lead are the dominating minerals. A district has not yet been organized, but considerable work is being done each year with better and more encouraging show-

ings as the work progresses.

THE RICH-CACHE.

After the Sundown and La Plata the mines most noted connected with Cache County is that of the Rich-Cache. This group is situated some thirty-four miles east of Logan and about the same distance from Montpelier in Idaho. They are near the crest of the range dividing the two counties.

and being just over the ridge are in the Bear Lake country. The company owns six claims along the strike of the vein, with the exception of one which parallels some of the others. The principal product is copper, though both gold and silver are contained in the product. Most of the development work has been done on what is known as the Daisy claim. About four hundred feet of development work, besides some surface labor to show the trend and character of the vein, has been done. This includes shafts, tunnels, drifts and so on. The contact is of limestone, quartzite and shale. One shaft of the Daisy is 76 feet deep, though most of the work has been done on what is called the 55-foot level, where they have exposed the vein to a width of 6x15 feet. The ore here averages 20 per cent. copper. This is the result of some twenty average assays and at the greater depth the same assays hold good. The best copper assay is 76 7/10 per cent copper, \$9 in gold and 20oz, in silver. Considerable ore is now on the dump and it will average 10 per cent. copper. A good wagon road, accessible the year round is built to the mine. There is abundance of water for all but power purposes, and there is no limit to the timber that is necessary. It is claimed that tests have demonstrated that the ore can readily be concentrated. If this is a fact the property should be of great value.

Sundown and Ca plata.

A sheep herder and owner first discovered ore in the La Plata district, and the greatest work done is on the mine, where he discovered galena as a result of the travelling of his sheep. A shaft was sunk by the Sundown and La Plata Mining Company a depth of 165 feet, and many drifts and levels run. Never were they without ore, and at all times galena running up close to 80 per cent. lead could be taken from a vein that seemed to be full of clay, the ore coming in kidneys which would average from a grain up to 150 pounds in weight. This same ore can be had at any time. The company has a good steam hoist, and could resume work with very slight cost at any time. A tunnel was also run in the Sundown claim about 190 feet with the expectation that a vein of lead ore would be encountered directly under a point on which a boulder having not less than 150 to 200 tons of pure galena in it had been discovered and shipped to the smelters. But in all this distance no ore was discovered.

At a point south of this and on the same claim some very healthy copper indications were exposed, but after the expenditure of about \$20,000 the company suspended operations, the price of lead and the blow at silver not warranting the further outlay of money, with the assurance that little was to be had even if ore in quantities were found.

Latterly the company has had some work done on the ground giving copper indications and the most gratifying results have followed. At different. points the presence of a very high grade of copper ore has been developed, and the ore has been found

in place and seems to be continuous.

A 2½ foot vein has been followed for some thirty feet, showing solid mineral which assays from 30 per cent. to 50 per cent. gray copper, while the balance is iron. It is thought that there will be a revival of interest and work in the claims as a result of this, and if further developments continue as favorable in appearance as at present, money will be expended to determine beyond all doubt the worth of what now appears so promising.

The Yellow Jacket shows a large body of carbonate ores that would pay at any time were they not so far from railroad transportation. They can be concentrated, but the roads have been too bad and the price of lead too low to justify a continua-

tion of the work.

The Sunrise has been developed through an incline to a depth of over 100 feet, and shows a continuous vein of solid galena varying in width the whole distance. It has demonstrated beyond doubt that the district is rich in galena ores and that it will in time come to the front as one of the greatest

lead camps in the west.

From the Idaho line on the north to Weber County on the south, claims have been located and more or less development work done. Excellent surface indications have been found near Franklin, Richmond, Smithfield, Logan, and on down to Paradise and far south, where great copper prospects are being opened up. In fact, from La Plata all the distance in a south-easterly direction to a point

some twelve to fifteen miles south of Paradise are to be found immense ledges showing such a high percentage of copper together with silver and gold, as to satisfy mining men who have examined the country that great mines are yet to be developed in this section. The above has been confirmed in the last two weeks by the wonderful exposure of ore bodies in the Blue Bell mine near Paradise, and properties in the Garden City District, near Rich-Cache which also, on the 20th of August, 1896, was making a superb showing.

Box Elder County

Covers a very wide area, practically unprospected save slightly along the western base of the range near Brigham and Willard Cities and on South to Ogden. Some very excellent showings have been made, and considerable work has been done, the New American Mining and Milling Company being one of the formost and most confident property owners in this district. It is worthy of note that the great copper finds of Paradise mining district are within about 12 miles of Brigham City and in the same range of mountains.

Another is the Garfield Mining Co., located about five miles north of Brigham City, on Gold Hill. It has run a tunnel in 1,300 feet, and drifted hundreds of feet beside. The ore vein is said to be 60 feet wide. The company is working vigorously, and

is well equipped for work,

The Salt Industry.

There are very many industries in Utah, outside of its mining interests, that approximate in value the salt manufacturing business. So much has been written concerning the Great Salt Lake that it is hardly necessary to describe it in this article; but we will briefly review the methods whereby the brine or water of the Lake, which is about 18 per cent solids, is converted into salt. It was the custom in early days to gather salt from along the shore, where the salt water had evaporated; but with the advent of development, it was found that salt of this kind, besides being dirty, was extremely

impure.

The Inland Crystal Salt Co., by far the largest salt company in Utah, have a very complete plant for the manufacture of all kinds of salt, and their method consists of pumping water to an elevation of about 15 feet; their pumps being located at some distance from the shore. The water, after being raised, is flumed to the shore, and there distributed in shallow ponds. The pond area of this plant is about 1,000 acres. This is covered to a depth of about 15 inches; and as evaporation commences to take place, the ponds are constantly replenished, so that the depth of water in these ponds is kept almost uniform. Precipitation occurs at a temperature of about 90 degrees with best results; and one of the tricks of the business is to prevent quick evaporation, which occurs at high temperature and precipitates impuri-

ties as well as salt. The desire is to keep the impurities in solution, and drain them back into the Lake. A good season will make a deposit of from 6 to 8 inches of salt, which is shoveled up into piles, and allowed to remain in the weather until needed. The great market in the past, of course, for this grade of salt, which is known as milling or stock salt, has been the silver mills; but that business has sadly deteriorated since the summer of 1893.

As an illustration of the extent of the industry prior to that time, the company above referred to made no less than 125,000 tons in one year. The immense value of this business to the railroads can be readily seen, and the amount distributed in wages is also great.

Hard times forced action toward the development of the refined salt business, and became

characterized.

The peculiar characteristics of the Salt Lake salt made it very difficult to refine, and it was only after extensive experiments, that the Inland Crystal Salt Company discovered that it was possible to make a granulated salt that is superior to any imported dairy salt.

The process consists simply of drying thoroughly crude salt, purifying it as it is being dried, then cracking it, and treating it to another purifying process, after which it is sifted and graded.

There are a number of other companies engaged in the salt business, though the hard times have caused most of them to practically

suspend operations. There are but two salt refineries in Salt Lake City. At Nephi are immense

deposits of Red Rock salt.

At Salina, there are also large deposits of Red Rock salt, and the superiority of this salt over others, gives it a very fair trade over the State and in Colorado for cattle feeding.

An artificial rock salt is manufactured by the Inland Crystal Salt Company, at Salt Lake, that is meeting with great favor. It is a patented article, containing 2 per cent sulphur. It is said to be a specific for blood diseases and scab, in cattle.

There are salt springs at Nephi which furnish a very good quality of brine. A company at that point evaporates this brine, and make a very superior article of table and dairy salt. The annual output of salt in Utah may be estimated at about 60,000 tons, valued at about \$250,000. This is just about one-third of what the business amounted to five years ago.

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Mechanical Preparation of Ores.

It is not always that mineral as it comes from the mines is ready for sale, but frequently requires to be subjected to "dress," or pass through me chanical processes to free the good ore from valueless veinstone, which is usually accomplished by either washing and hand-sorting, disintegration or reduction in size; classification by size or by equivalence or by concentration. There are primeval ways to all these methods, but the practical, up-to-date miner needs not to be told which way is best. But we are not all such miners, hence a few brief descriptions:

Washing trommels are revolving cylinders on truncated cones of sheet steel provided with teeth inside. The ore is fed in at one end, subjected to a stream of water, and emerges at the other end. Thus cleansed the ore is easily sorted from the veinstone, and further sorted as to the grade of the ore, or the various kinds of ore that are contained

in the vein.

Reduction in size is practically necessary for several reasons well known to miners. If the ore was originally clean enough for the smelter the large chunks should be crushed to obtain a fair sample of the whole, and it is known that ore particles are found enclosed in or adhering to particles of barren veinstone. There are stone-breakers, stamps, rolls, mills and centrifugal pulverizers used in this process.

Classification of a crushed ore into sizes is ad-

visable in some cases and necessary in others; because concentration is dependant upon the fall of the particles in the water. This is accomplished by cylindrical or conical sieves or screens, known also as separators or classifiers, which, while not effecting a true classification by size, cause a division by equivalence. The ore is then enriched by concentration of the valuable particles into as small a bulk as is economically advantageous. After the ore particles are in the water, they are usually collected by mercury or magnetism, if gold and silver ore. The principal machines used in this process are the jiggers, rotating, percussion or sideblow frames, and the Frue vanner. The hand, concave and round buddle and keeve are more for experimental than practical use.

The series of processes employed in "dressing" an ore varies according to the particular mineral to be concentrated, the size of its particles, and the nature of the other minerals with which it is associated. With gold ores reduced by stone-breakers or stamps, much of the metal is caught by quick-silver; what escapes is concentrated with accompanying pyrites and treated by amalgamation, chlorination or lixiviation. Silver ore is likewise amalgamated and concentrated when necessary, but water causes a serious loss. Lead ores are sometimes crushed and classified, and also concentrated. Zinc ore is dressed in the same manner as lead ore, and as galena and zinc-blende are frequently associated, they are separated by the jig, buddle and frame. Tin ore is crushed fine and the

sand and slime concentrated by the round buddle, keeve and frames which get it as close as possible to cassiterite in the percentage of metal. Copper ores are crushed, sized, jigged and buddled, but as some of the ores are very friable and easily carried away by water, hand-picking is employed to a greater extent than with lead or tin ores, and the enrichment by water is not carried so far on account of the inevitable loss that would ensue. amount of concentration depends largely on the distance from the smelter, and the mine-owner has to calculate whether it is best to get a low price for a large quantity of ore after paying freight, or a higher price for a smaller lot after paying for con-centration and loss by that process. The loss in "dressing" is not by any means small, as stubborn facts show it to be from 20 to 50 per cent in most practical experiments.

The art and science of smelting has so much in, and of and to it, and especially that which by research study and invention of late years has so materially added to method and process, that in a

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work of so narrow a scope as intended here, it can be treated upon but superficially. The field of work is quite limitless, and yet the same ends are reached, the great study and art being to reach that end in the speediest and most economic way. It is the process of obtaining metal from ore by the combined action of heat, air and fluxes; said action being supplemented by the frequent new discoveries made by metallurgists, and the operation varies according to the different metallic ores to be operated on. A smelting furnace then is a furnace for the purpose of disengaging the metal from its gangue, or the non-metalliferous portions of the ore. furnaces differ as much as the styles of wearing apparel, each made according to the metals to be treated; but blast and reverberatory furnaces are the most common used in smelting common ores.

SMELTING LEAD.

Owing to the great fusibility of lead, it is easily separable from the ore without the aid of a blast in the furnace. The ore is sorted, cleansed, ground and washed, and then roasted without any blowing apparatus. Where lead ores contain other metals, the treatment is different—blasting, fluxing, etc., etc.

SMELTING TIN.

The smelting of tin consists of the calcining or roasting of the ores after they have been cleansed, sorted, stamped and washed. As this ore is not yet found in commercial quantities in Utah, the treatment will not be given in detail.

SMELTING COPPER.

The smelting of copper consists in alternate roastings and fusions, [the most scientific modern treatment being now in operation at Anaconda, Montana], the first of these operations being the calcining of the ore in furnaces in which the heat is applied, and increased gradually till the temperature be as high as the ore can stand without melting or agglutinating, when the ore is thown into an arch formed under the sole of the furnace. The second operation, or fusion of the calcined ore, is performed in a luted furnace, the ore having been spread uniformly over the hearth, and fluxes such as lime, sand or fluor-spar being added when required; although the necessity for this addition is sought to be obviated by a careful admixture of ores of different qualities, the several earthy components of which shall serve as fluxes in the fusion of the These two processes of calcination and fusion are repeated alternately, until the ore is en-

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tirely freed from all the earth materials, and pure metal results. This is principally known as the dry or pyro-metallurgical method. Another is the hydro-metallurgical or wet method; still another is the electro-metallurgical method. The dry method is the least profitable and practiced for ores containing less than 4 per cent of copper. The "English Method," practiced at Swansea, in Wales, has been greatly modified in this country, according to the iron, sulphur, silica, tin, arsenic, etc., in the ores treated. William Henderson was the inventor of the most elaborate wet process for copper extraction, in 1859, which he patented, and is similar to the process patented by William Longmaid, in 1842, which was chiefly designed for the production of sulphate of soda, the copper being a secondary consideration. From a very remote period it has been known that water which drained from mines containing pyritous copper ores, and which, from the oxidation of the sulphide of copper contained some cupric sulphate, yielded metallic copper, by precipitation in the presence of tin, malleable or cast iron. Copper thus obtained is known as concentration copper, and is the same as that precipitated in the lixiviation treatment.

SILVER SMELTING.

There are more processes for the extraction of silver from ores, than are known of any other metal. It has been the most experimented with. So far as known the oceans contain some eleven thousand million tons of it, and it was this salt sea

water that has helped to teach the metallurgist the secrets of the ore treatment. The Frieberg process of smelting is to first roast the ore with common salt, and then with water, scrap iron and mercury; the mass is churned in a barrel, the iron precipitating the silver which forms with the mercury into a semi-fluid amalgam which is pressed in a linen bag to eliminate silver-free mercury and then it is retorted. The Augustin method succeeded the Frieberg. The Mexican process was invented by Bartolomeo de Medina in 1557, and is still used in Mexico, Chilli and Peru. The ore is crushed, and with water made into a paste, into which mules tramped salt and sulphate of copper which converted the silver into a sort of amalgam within from fifteen to forty-five days. The silver chloride is gathered from the amalgam by colomel, and the colomel is allowed to go to waste while the mercury is saved. Neither of these processes return pure silver even in a commercial sense.

Modern methods and processes are numerous, but for the incidental extraction of silver from essentially base-metallic ores, the method in the case of all lead ores is simply to proceed as if only lead were present, and from the argentiferous lead produced to extract the white metal. In the treatment of sulphurous copper ores, one method is to smelt the ore (with, if necessary, an addition of galena, or some form of oxide of lead) so as to produce a regulus of lead, and a matte of sulphide of copper, which latter should contain as little lead as possible. The silver follows chiefly the lead, and is extracted from it



HON. R. C. CHAMBERS, OF THE ONTARIO AND DALY.



HON. J. J. DALY, OF THE DALY-WEST.

by cupellation, but some silver will stay even with a lead-free matte. A modern method of extracting silver from copper matte, is to roast it at a low temperature, which will produce a large proportion of metallic sulphate, and then destroy the copper with a higher temperature. The silver remains as sulphate which is extracted with hot diluted sulphuirc acid. However, the Lautenbach, Claudet and Field processes are familiar to those interested, and bring the science down to the very present of modern treatment of silver ores.

RECOVERING GOLD.

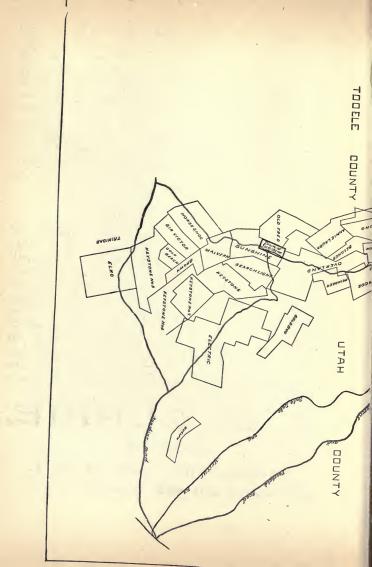
The "dressing," or mechanical prepartion of vein stuff containing gold, is quite like that of other ores, but principally by amalgamation. We will not touch upon the methods of the placer with pan, batea, cradle, trough, sluice and hydraulic mining, the Mexican crusher or arrastra, and the Chilean mill or tropiche, were the first gold "mills." The stamp mill of California was the basis upon which has been built all pestle mills. Then came the rotating mill with mercury and blankets, and then the Hungarian mill, and various styles of pan amalgamators based on the Knox style. Of course

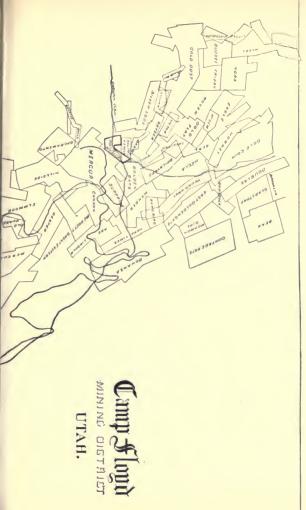
J. W. CURRIE,

ASSAYER,

159 MAIN STREET, SALT LAKE CITY.

POST OFFICE BOX 565.





it depends on the ore to be treated as to which is the best method, but at this particular age of the world as to mining, it is the cheapest method for the treatment of low-grade gold ores that the miner and mill man are after.

In the Knox pan the pulp is made of the consistency to adhere to a stick, then heated with steam after three hours grinding and next five pounds of mercury are added together with a cupful of equal parts saltpetre and sal ammoniac. The slime is then worked for another three hours when water with a little caustic lime is added and then the pulp is discharged, first through an upper and then through a lower hole. One of the greatest difficulties in amalgamating gold, especially that contained in pyrites, is the "sickening" or flouring of the mercury, which loses its bright, metallic surfaces, thus failing to take up other metals. Sodium amalgam is the best remedy for this. It has been shown that cyanide of potassium loses gold. In the separation of gold from the amalgam, it is first pressed in wetted canvas or buckskin in order to remove excessive mercury. Lumps of solid amalgam are then introduced into an iron vessel lined with a paste of fire-clay and wood ashes, and provided with an iron tube that dips below the surface of water, and the distillation is then effected by heating. The bullion left in the retorts is then melted in black-lead crucibles, with the addition of small quantities of suitable fluxes.

The extraction of gold from auriferous minerals by fusion, except as an incident in their treatment for other metals, is rarely practiced.

Gold in galena or other lead ores is invariably recovered in the refining or treatment of the lead and silver obtained. There are two many processes for refining gold to be covered in a work of so narrow a scope as this, but all are easy of access to those interested.

As for the kinds and styles of furnaces used in the treatment and smelting of ores, they are as numerous and diversified as the refining and mill processes, and the detail of one or all may be easily learned by those concerned.

LIXIVIATION TREATMENT.

The process of extracting and saving the gold in the ores of the Mercur district is by the lixiviation process. The gold is very fine and in a divided state, which is dissolved in a weak solution of cyanide of potassium just as sugar is dissolved by water, the proportion being about two pounds of potassic cyanide to forty-eight gallons of water, and it takes from twenty-four hours to three days to dissolve the gold in a vat or tank, filled with ore and treated in this way. This cyaniding is the great factor in the industrial development of the district. After the gold is in the cyanide solution it is precipitated by passing the liquor over zinc shavings, about one-half pound of zinc being used for each ounce of gold gathered by it.

WORKING CHEAP ORES.

The hundreds of mines in Utah that have vast bodies of low grade ores are solving the problem of successfully working them by one or several of the new, cheap processes that have been introduced from time to time. Experimental science has made some wonderful strides in recent years, and now it is no secret of how to extract the values with profit from ore worth less than three dollars per ton. Space forbids a detailed mention of all the various processes and methods used successfully in this direction; but a few of the most important are given so that the miner may know that his low grade ore may be handled with profit.

The Clark process of drying, stamping, salting, roasting and leaching was among the first of the chlorination-lixiviation processes. It has of late been simplified and made so that ore can be treated

for about \$2 per ton.

The Gervase-Brown chemical-electric process of smelting by electricity expects to practically solve the problem at a cost of about \$1.75 per ton, and

saving about 97 per cent of the values.

The Hypo-Sulphide process has been proven successful at the Homansville mill, and the Russell process has for years been satisfactory at the Marsac mill at Park City.

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Utah Smelters and Samplers.

The smelters of Salt Lake City and Utah comprise every known method for the treatment of all kinds and conditions of ore. These include the most modern and improved samplers, mills and refining plants. Such old establishments as the Conklin Sampling Works, Germania Lead Works, Hanauer Smelter, Pioneer Sampler, Pennsylvania Smelting Company, and Taylor and Brunton Sampler, are too well known to need historical mention here. They are old and tried institutions that have been great and substantial factors in the upbuilding of this great mineral empire. A few brief statistics only are given, with such mention as may serve for future comparisons.

CONKLIN SAMPLING WORKS.

With new machinery placed during the latter part of 1895, the Conklin Sampling Works has maintained its old prestige and is unsurpassed by any smelter in the state. The major portion of the new machinery is automatic in action, and the capacity has been increased until a day's run of 400 tons of ore is not an unusual occurrence. The works are run night and day, and employ in the neighborhood of fifty men. If the average amount of work is continued throughout the year 1896 between 50,000 and 60,000 tons of ore will have been treated by this company. The Conklin, next

to the Pioneer, is the oldest sampler in the state, and under the careful management of Mr. C. B. Markland, has grown in public favor.

THE HANAUER SMELTER.

The Hanauer Smelter is an institution that has steadily gained in prestige and increased business. In 1894 the smelter turned out 7,175,200 pounds of lead; 490,000 pounds of copper; 723,550 ounces of silver, and 3,860 ounces of gold. In 1895 the output was 8,170,000 pounds of lead; 625,000 pounds of copper; 770,500 ounces of silver, and 7,820 ounces of gold. For 1896, at the ratio of business up to date the output will be increased over 1895 at least 20 per cent.

THE GERMANIA LEAD WORKS.

The Germania Lead Works is one of the oldest and best established works in Utah, and has made many valuable improvements during the past year. In 1895 the output was 2,091,750 pounds of copper matte; 952,502 pounds of copper; 16,930,700 pounds of lead; 1,722,740 ounces of silver and 9,753 ounces of gold. The present ratio will increase the output for 1896 about 15 per cent over that of 1895. About 350 men are employed.

PENNSYLVANIA SMELTING COMPANY.

The Pennsylvania Smelting Company has one of the best plants in the state, located at Sandy. It

has a capacity for double the amount of work it now does with 160 men. In 1895 the smelter produced 9,012,391 pounds of lead and 237,400 pounds of copper; silver, 906,698 ounces, and gold 79,027 ounces. The business for 1896 will be largely in excess of these figures.

PIONEER SAMPLER.

The Pioneer Sampler at Sandy is enjoying an increased patronage over 1895, the contributing camps having a revival this year in the output of ore. In 1895 this sampler treated 16,075 tons of ore, and at this writing, the close of 1896 will quite double these figures.

TAYLOR AND BRUNTON SAMPLER.

The Taylor and Brunton Company have one of the very finest and most improved Samplers in the state, and treat the greatest tonnage of ores. In 1895, with their mechanical sampler at Pallas Station, south of Salt Lake City, this company treated 56,571 tons of ore.

PARK CITY SAMPLER.

The Park City Sampler is handling more ore in 1896 than at any time in its history. From December 1, 1894, to December 1, 1895, this sampler

treated 67,290,460 pounds of ore and concentrates, or 33,645 and one-half tons. For 1896 it would appear that this sampler will handle about 50.000 tons.

THE PECK CONCENTRATOR.

The Peck Concentrator is at this writing (September 1st) in course of construction at Park City, and will be in operation by December. This plant is being constructed primarily for the treatment of the vast tailing dumps of the Ontario and Marsac Mills, and incidentally to do the custom work for the lower-grade mines of the district. The Peck Concentrator will prove of inestimable value to Summit County mine owners, and many properties now idle will spring into active existance as a result of its construction, thus stimulating all business enterprises in the district.

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The Mercur District.

"The Johannesburg of America" lies in the Camp Floyd Mining District, and Mercur is the business center of an extensive mining area, which as yet has no established boundaries. It lies thirty



STREET SCENE IN MERCUR.

miles from Salt Lake, on an air line, just over the Oquirrh range, in Tooele County. Camp Floyd is full of history, legend and story, and was first founded by Colonel Albert Sidney Johnston, in 1858, when, with 3,500 men he closed the "Utah War" at Fairfield.

In 1870 mining was started for the first time, and since April of that year there have been more kinds of mining and more excitements attendant upon the same than perhaps ever occurred in any mining camp. The first cliim recorded was a placer location, showing that gold was the metal first discovered. In the same year, however, discoveries of silver ore were made in the Sparrow Hawk and Last Chance lodes, and these caused the first boom in Camp Floyd. Mills were built and claims were sold at fabulous prices, many of which did not make anywhere near equal returns. The Carrie Steele strike was the richest, made in 1871. In 1872, the town of Lewiston, present site of Mercur, sprang up mushroom-like, and in a very short time had quite as many buildings as the Mercur of the present. By 1880 there was but one house left in the canyon, the camp having been deserted as worthless, and fire and wind finished the desolation and abandonment after an output of about one million dollars in silver.

In the spring of 1881 Arie Pinedo, a German, located the Mercur lode claim (which is the German pronunciation of mercury) and proceeded immediately to patent it. Pinedo thought he had found a wealth of the subtle fluid, but it never paid to develop, so he abandoned it. It was not until 1890 that Pinedo and the public were made acquainted with the actual worth of the Mercur mine.

In 1883 gold was again discovered by assay that would not show color in a pan, and this secret

of the ores was one of the most important that has ever been solved in mining, and as a consequence desultory mining was carried on until 1885. From that time until 1889 but little if anything is known



MARION MINE AND MILL.

of the camp. In March, 1889, Joseph Smith, principal owner of the Marion Gold Mining Company built a mill and experimented with the silver ore of the Sparrow Hawk, and failed to get out pay ore on account of too much antimony. Being a practical assayer, he made fire tests for the yellow metal, and found he had from \$30 to \$90 in gold, and this was the true beginning of one of the richest mines in the world. More about this company will be found under another head.

Until the year 1893 the peculiar fields of Mercur had caused much thought and great experiment as to how to treat the ores for their full value, but this is happily passed by the introduction of the cyanide treatment. From this triumphant winning of the precious metal dates the setting in of a tide of emigration to the now known gold fields lying in fabulous wealth over the abandoned and considered to-be-worthless silver camp, and this last of all the strange metamorphoses marks the era of greatest progress. In 1893 other cyanide mills were started and helped to prove the value of the ores and great worth of the camp.

In 1894 the most active prospecting was commenced, and the old silver prospectors paid no attention to the hundreds of skeptics who followed in their wake to exert sinister influences and give the camp a black eye. They were full of hope and pluck, and the result of their labors is pleasing

history.

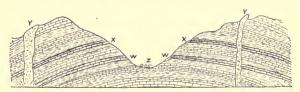
MERCUR MINERALS.

The ores of Mercur are oxidized and arsenical, or base, and each of the two are uniquely different in character of treatment. There is but little iron and an excess of silica, which makes a most desirable cyaniding ore. Cinnabar is so far not sufficiently in evidence to be worthy of serious attention. Sulphur is found, but of no commercial consequence. Oxidized ores are produced from all the paying properties, and the only drawback to the perfect operation of the cyanide process is the presence of arsenic, which impairs the solution and fails to

dissolve the gold, and therefore but little of this arsenical rock is mined with the ore, or if so, it is thrown out before it reaches the mill. The base ore is a dark, greenish-black, showing seams of arsenical sulphides, and where thickly seamed carries but little gold. Otherwise this drawback to the treatment will be overcome by the roasting process before cyaniding. The veins are from ten to forty feet thick, and will easily average twenty feet, and produce fully a ton of ore to the foot of surface area. There are frequent exceptionally large ore bodies on the veins that widen out to unexplored dimensions, known up to the present to be fully 100 feet in area and no sign of walls.

GEOLOGICAL FORMATION.

The geological formation at Mercur is analogous with other great producing camps that have had



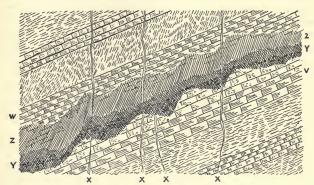
NORTH AND SOUTH SECTION, ACROSS LEWISTON CANON.

Z-Mercur town. Y-Dikes. X-Gold bearing zone.

W-Silver bearing zone.

longevity in their prosperity. The ore is a carboniferous limestone associated with eruptive rocks, a combination surely suggestive of continued prosperity. Mercur town is situated on the vertical axis of the eruptive mass from whence the strata inclines in all

directions. Two ore-bearing zones outcrop in Lewiston Canyon from one hundred to two hundred feet apart, the upper being gold-bearing, and the lower silver. The upper metalliferous horizon contains



SECTION OF A PORTION OF MERCUR ORE BODY.

Y Ore, with chert nodules. Z Shaly and soapy material. V-Crystalline limestone floor. W-Drab limestone roof. X-Heavy spar veins.

the auriferous ore in an impregnation of limestone and shale, as a rule, along lines of bedding. However, it is already known that the gold is not confined to one horizon, as it has been demonstrated in two—the Mercur and Sunshine.

MERCUR CAMP.

Mercur will never be a metropolis, but it bids fair and honestly to be one of the greatest mining towns in the country. It wears no ephemeral airs; it started out conservatively and has already established a permanency. As far as it has gone, it has not weakened its foundation, and every movement is of a substantial character, as conspicuously shown by its people and their buildings. The elevation is 6,400 feet, with good climate and water. At this writing the statement can be conservatively made that within two years the development of the mines and their consequent mills, together with allied industries and other vocations, will increase the population of 2,000 of the district at present to 10,000 at the end of that time. There is no question now about the high grade of the ore or of its great extent and lasting quality. The future of Mercur is in no way problematical.

NUMBER OF LOCATIONS IN CAMP FLOYD.

Up to January 1, 1896, there had been recorded in the Camp Floyd district 3,750 mining claims. Hundreds of these have lapsed from time to time since the first discoveries, not having had representation work done, while many locations are but plasters on top of old, patented claims. A fair estimate of the number of legitimate claims located in the district would be between 2,000 and 2,500. Not more than this number would stand good in test cases.

SUNSHINE CAMP.

The town of Sunshine is a very prosperous camp about the center of the Camp Floyd district, founded upon the success of the Sunshine mines and mill and contiguous valuable claims that are all fast becoming great producing mines. It is in a



SUNSHINE MINE AND MILL.

better location than Mercur, not so high, and bids fair to become quite equally as large and prosperous.

WILLIAM H. BIRD.

P. O. BOX 623.

JAMES LOWE.

BIRD & LOWE,

LAND AND MINING ATTORNEYS

Office: Rooms 16, 17 and 18 Scott-Auerbach Bldg, Main Street,

SALT LAKE CITY, UTAH.

It has been only within three years that active prospecting was begun in Sunshine camp, and not until the Butts Brothers drove in on an outcrop and opened upon a breast of ore heavily impregnated with cinnabar, that active development began. It was then that Judge William A. Sherman, Charles H. Jacobs and Frank Officer took hold of the Butts boys' Sunshine claim and commenced operations in earnest.

SUNSHINE GOLD MINE AND MILLING COMPANY.

The property of this company is the pivotal point of all claims in the Sunshine portion of the Camp Floyd Mining District. To date it has the only mill outside of Mercur camp, though it is understood that the Overland Company has about concluded contracts for the erection of a mill to work the ores from the latter company's property. This mine's workings and extraordinary developments are what have given encouragement and confidence to all other claims in its vicinity, the result being the exposure of ore bodies in the Overland, Red Cloud, Old Fred and other properties. It is believed that for the work done, the Sunshine has exposed larger bodies of ore than any other property in the district. Besides a superior hoist, the Sunshine has a mill with a crushing capacity of 300 tons daily and a vat or leaching capácity of 60 tons daily. This latter is to be increased so that the leaching output may be made 150 tons daily. The extent of the ore bodies in this remarkable gold property will be better understood when the statement is made that all the ore so

far produced and leached has been extracted in the course of development work and exploration—that at no time has it been necessary to attack the ore bodies to supply the mill. In fact, the mill capacity could be largely increased and still be supplied by the driving of the inclines and levels alone without touching the ore bodies, save for the extension of the levels. In fact, practically all the workings are in ore, the present workings being for the sole purpose of ascertaining the boundaries of the ore body, which, up to the present time, have not been reached. The property is developed by an incline 600 feet deep and by three levels beginning at a depth of 300 feet. These levels with slight upraises and winzes have developed the ore bodies in various directions to an extent of about 6,000 feet, not including the incline.

The Sunshine is a close corporation, nine-tenths of the stock still remaining in the possession of the original owners and no proposition for purchase (numbers having been made) will be considered. The officers are: J. E. Schwartz, of Philadelphia, President of the Pennsylvania Smelting Co., is president; W. A. Sherman, vice-president; F. H. Officer, secretary and treasurer; and C. H. Jacobs,

manager.

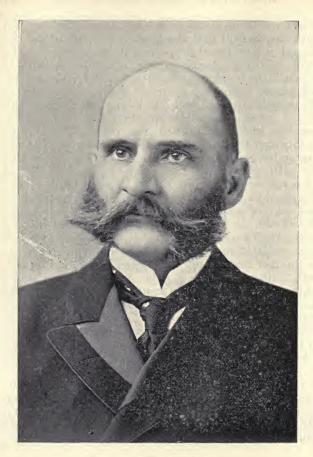
THE HERSCHEL MINING COMPANY.

This corporation owns about 140 acres of the most desirably situated lands in the Camp Floyd Mining District. Their ground abuts the great Mercur and the Sacramento, and since ore is found on both sides of them at uniform points, there is no

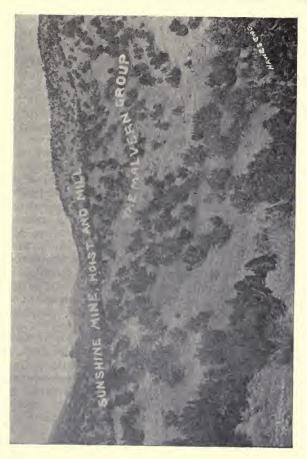
doubt whatever in the minds of all persons familiar with the district that the Herschel is one of the big though undeveloped properties in the district. The mine is being developed by a tunnel at such a depth as to leave the ore bodies above; yet affording ample dumping ground. Near the mouth of the tunnel the mill will be located so as to admit of the most economical leaching, as well as extraction and handling of the ores. The tunnel is in about 625 feet, but it is not expected that the ore bodies will be reached before it has penetrated the earth about 1,000 feet. This estimate is formed by a survey of the ore veins on both sides of the Herschel as developed in the Mercur, Sacramento and other grounds. The company is capitalized for \$5,000,000, divided into 1,000,000 shares of the par value of \$5 each, of which 200,000 shares are set aside to be disposed of for development. In spite of the fact that no ore had been found and practically little work done, the price of the stock, which was originally ten cents per share, went up to twenty-five cents per share, and has been held at that price or higher ever since. This fact affords the best evidence of the confidence of those interested in the value of the Herschel-a confidence based on a knowledge of the geological conditions obtaining in the district.

Theodore Bruback is President of the Company; J. D. Keifer, Vice-President; W. S. McCornick, Treasurer, and S. T. Pearson, Secretary. Mr. Joseph Smith of the Marion is directing the

work of development.



HON. THEODORE BRUBACK,



THE MALVERN GOLD MINING COMPANY.

The Malvern group of claims, ten in number, gives to the company a surface area of some 200 acres. It lies immediately south of and adjoining the Sunshine, and the ground is largely owned and controlled by those most heavily interested in the Mercur and Sunshine mines. There seems to be no reasonable doubt as to the existence of the great Sunshine vein under the Malvern ground, since the workings of the former mine are in the direction of the Malvern ground, and it is in this same direction that the recent noted strike in the Sunshine was made. The dip of the strike made on the six hundred foot level of the Sunshine (and it is conceded to be the most valuable and important ever made in this property), is into the Malvern ground at the point where the claims of the Sunshine and the Malvern adjoin each other. As a matter of fact the work in the Sunshine is really developing the great value of the Malvern claim fully as effectually and perhaps more rapidly than the Malvern owners could do the work themselves.

The Malvern has, however, a shaft already sunk some 220 feet, while drifts and levels have been run from the shaft to different points of the compas. Besides this, such other work as was necessary to comply with the law has all been performed, and by the time this book is in the hands of the public a strong force of men will be again employed with improved machinery to continue the shaft until the ore bodies now known, by reason of the Sunshine

workings, to exist in the Malvern ground, shall have been reached. Pay ore has long been had in the Malvern, but the assurance of larger bodies and at greater depth, and the knowledge that with depth always comes greater values, has decided the company to keep on sinking until connection is effected with the bodies discovered in the Sunshine workings at a depth of over 600 feet. As in the case of the Overland, the ground has been experted, and there is no difference of opinion as to the presence of the ore bodies in the Malvern ground that

exist through this district generally.

Mr. John Dern, President of the now famous Mercur mine, is President of the Malvern; Mr. W. A. Sherman, President of the Overland and Vice-President of the Sunshine Company is the Vice-President of the Malvern; Geo. W. E. Dorsey is Treasurer, and Chalres H. Jacobs, Manager of the Sunshine, is the Malvern's Secretary. These gentlemen, and E. H. Airis, Secretary of the Mercur mine, Mr. J. E. Dooley, Cashier of Wells, Fargo & Co's Bank in Salt Lake, and Mr. Frank H. Officer, Secretary of the Sunshine mine, and manager of the Pennsylania Lead Co's smelters here, make up the directory of the Malvern. The company has a capital stock of \$1,500,000, divided into 600,000 shares of a par value of \$2.50 each.

The Malvern is owned and controlled by the men who have made the great properties of Mercur

and Sunshine, etc.

THE WONDER GOLD MINING COMPANY.

The Wonder Gold Mining Company has some five claims and fractions embracing about seventy surface acres, almost entirely surrounded by the great properties of Captain De Lamar at Mercur. The ground of the famous Golden Gate mine, said already to expose from \$5,000,000 to \$8,000,000 in ore, abuts the claims of the Wonder Company for a distance of some 3,000 feet, and it is known that the ore bodies in the Golden Gate have developed to a point within 350 feet of the Wonder claims. Since the veins of the Marion, Geyser, Mercur and Golden Gate have been developed almost continuously for a mile and a half up to the point near the Wonder ground, it would be absurd to assume that it does not run into the Wonder group, particularly as the workings at the point indicated as nearest the Wonder are in the characteristic gold ore of this remarkable district. Beyond any question the dip of the vein is into the property of the Wonder Company. The vein is expected to be encountered at a depth of 400 to 420 feet. A shaft has already been sunk on the property to a depth of 350 feet, and as two feet a day is made, confident expectation is that the shaft will tap the ore body during September. The company has a fine plant, by means of which the shaft could be sunk to a depth of 1,000 feet if necessary. Already the shaft is below the water line, so that a station pump handles all the water in the shaft. The work has been continued without interruption since February last, and will be continued until the ore is reached.

The property has been examined by no less an expert than Mr. George H. Robinson, who confirms the judgment of those investing in Wonder stock that the great ore chutes of the Mercur, Golden



THE WONDER HOIST AND WORKS.

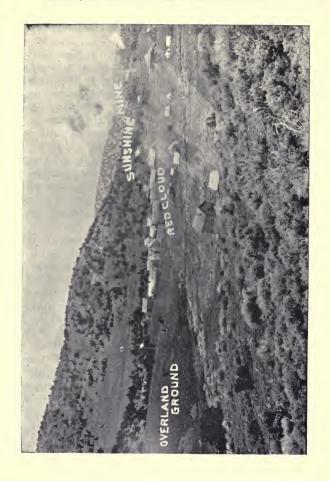
Gate, and other mines will be found under the surface of the ground owned by the Wonder. The Wonder Gold Mining Company is exceptionally favored in its officers. Hon. George Q. Cannon, one of the three Presidents of the Mormon Church, and one of the most notable men of affairs in the west, is president of the company; Angus M. Cannon, heavily interested in the Mercur district, is vice-president; John W. Donnellan, until lately President of the Salt Lake Mining Exchange, and still Cashier of the Commercial National Bank, is treasurer; Lewis M. Cannon is secretary, while Mr. P. J. Quealy, late Manager of the Rock Springs Coal Company, of Rock Springs, Wyoming, is superintendent and manager. These with John M. Cannon, attorney, and George M. Cannon, Cashier Zion's Savings Bank, and President of the first State Senate of Utah, constitutes the directory.

The company is capitalized for \$5,000,000, the par value of the shares being \$5 each. The stock is non-assessable while the company is possessed of patents for every foot of the ground claimed by the corporation. The assertion is reasonably safe that the Wonder is destined to be one of the great

producers of a great gold producing district.

THE BUDDEE GROUP.

Messrs. C. H. Scheu and C. L. Dignowity own the Buddee group of four claims, lying northwest of the Marion, upon which extensive development bas been made, with very promising results.



ANNIE MINING AND MILLING COMPANY.

The Annie Mining and Milling Company, a Provo corporation, is the owner of very valuable property in the Camp Floyd District, on the same hill (but on the south side) as the Mercur mine. The Annie's developments are on the same elevation as those of the Mercur, and the owners are satisfied that they have the Mercur vein, and only need development to obtain the same values. The ground is in the very heart of the Mercur District and embraces nine and a fraction claims, comprising about 200 acres, five claims of which are owned by the company, the balance under a very favorable bond. The ground lies near the Overland, in which large bodies of ore have been found; it is near the Anderson group and not far from the Hillside. Work on the Annie group consists of one tunnel in 165 feet into the hill, where the vein was intersected. Another tunnel was commenced on the same elevation but northeast. This was pushed in some 240 feet. A single compartment well timbered shaft has been sunk about 200 feet northeast of the first tunnel. From the bottom of this shaft a level was run west about 700 feet, 65 feet of which was in the same vein as that exposed by the first tunnel. An upraise of 25 feet and a winze of 10 feet at this point showed the vein to be 18 feet in thickness, varying in values, but assaying sufficiently to work when the company has completed its preliminary prospecting. From the bottom of the shaft the vein was developed 20 feet to the north and 20 feet to the south, while ore was also exposed in the long level to the west. The Annie is driving toward the Mercur workings, in which property rich veins have been developed 1,400 feet to the south and in the direction of the Annie group. All developments are in precisely the same formation as prevail in all the paying properties of that district, and, as in the others, there is no lack of assurance that wished-for higher values will come with greater depth. The company is well equipped with machinery for the work in hand and contemplated. It has a building over its shaft and tunnels, and has office and eating houses. It is capitalized for but \$250,000, divided into 250,000 shares of a par value of \$1 per share. A. D. Gash is president; Dr. A. McCurtin, vice-president; H. F. Thomas, secretary; H. S. Martin, treasurer; and Mr. J. M. Davis, manager. The directors are A. D. Gash, Dr. A. McCurtin, S. A. King, S. A. Swasey and C. H. Wood. Despite the extensive developments and small capital of the company for this district, the Annie still has 47,000 shares of treasury stock reserved and which will only be disposed of to continue development work in the company's ground.

THE OVERLAND GOLD MINING COMPANY.

That part of the Camp Floyd District known as Sunshine (so named because of the Sunshine mine there) will soon have another mill at work on the gold ores of the district. It is the Overland, in which large bodies of ore have been opened up; and by the time the mine is so far developed as to supply the necessary ores for the mill having a

capacity of 100 tons a day, the mill will be ready for operation. The Overland group, and it is one of the largest in the camp, lies directly north of and adjoins the Sunshine mine, which has been yielding ore for many months now and which recently uncovered in its lowest workings the finest ore body so far exposed in this noted property. The Overland has been developed by a shaft now over 175 feet in depth. A level was run from the shaft at a depth of 125 feet, and when in 40 feet to the west it caught the vein. From this point a winz was sunk a depth of 15 feet, all the while in pay ore of the character obtaining in all the area in that section. Another level was run from the shaft at a depth of 155 feet. This extended north 60 feet, following the strike of the vein, while an incline shaft is being run from the bottom of the shaft, following and on the dip of the vein. About 800 feet north of the shaft referred to another has been sunk to a depth of 110 feet. The ore will average, where exposed, 20 feet in thickness, and will assay from \$4 to \$22 to the ton. But it is all good pay ore, and the Overland may be counted among the big properties of the Sunshine part of the Camp Floyd District.

The Overland group consists of 15 claims, giving to the company a surface area of about 200 acres. It has a very imposing list of officers and directors: W. A. Sherman, of Salt Lake, and Vice-President of the Sunshine Company, is President; W. H. Bancroft, Superintendent of the mountain division of the Union Pacific, is Vice-President; J. M. Stoutt, President of the Utah National Bank, is

Treasurer; G. W. E. Dorsey, ex-Congressman from Nebraska, is Secretary. These gentlemen, together with E. Dickinson, General Manager of the Union Pacific system, C. A. Armstrong, owner of the Bachelor mine at Ouray, Col., and W. W. Stoddard, Manager Daily Reporter Co., of Salt Lake, make the directorate.

The company has a capital stock of \$2,000,000, divided in 400,000 shares of the par value of \$5 each.

GOLD POINT CLAIMS AT SUNSHINE.

The claims of the Gold Point Mining Company in Mercur or Camp Floyd Mining District are most happily situated, since ore is found in nearly all the properties west of and adjoining them. The great Sunshine mine, in which the most important strike of its history has recently been made, the Overland, the Red Cloud (in which a 26 foot vein of pay ore has just been uncovered at the point nearest the Gold Point), are all in ore and would seem to point with certainty to the existence of like large bodies in the Gold Point group. The recent discoveries referred to have verified the report of Mr. O. A. Palmer, made to the company on the 17th day of April last, in which he says: am thoroughly of the opinion that the general mineralized zone of the Camp Floyd District underlies all this property, dipping easterly from the Sunshine mine towards the Gold Point property." He says further that an examination of the great Sunshine workings then, as now, being pushed toward the Gold Point ground, showed the vein or ore body to be but 1,800 feet from the latter

property at that date—about April 1st of this year—since which time the important strikes referred to have been made. In concluding the report, Mr. Palmer says of the Gold Point: "I predict even better values in the ore found under your property than in the famous Sunshine mine, on account of the greater depth at which it is found." Than Mr. Palmer there is no more painstaking, experienced or reliable expert in the West, and his thirty-three years spent in Utah, Idaho and Montana make him an authority without an equal in this field.

The Gold Point has six claims, or about 120 acres of ground all surveyed and in process of being patented. The officers and directors of the company are among the most reputable of Utah's citizens, being James Chipman (State Treasurer), president; W. H. Grant (a wealthy stock and mine investor), vice-president; J. M. Stoutt (President Utah National Bank), treasurer; A. B. Jones (Cashier Utah National Bank), secretary, who, with Hon. Thomas R. Cutler, President of the Lehi Bank and General Manager of the Utah Sugar Company, constitute the directory.

The company is capitalized for \$1,000,000, divided into shares of the par value of \$1 each, non-assessable. Of this 100,000 shares have been set aside for sale as a working fund, the stock to be sold at 15 cents per share or more, at the option of the directory, for the exclusive purpose of developing the property. With such an official roster there is no need to state that everything connected with the company will be conducted on the most equitable, painstaking and energetic plan.

Few opportunities for such an investment in the hands of such trustworthy men are to be had.

The company already has a shaft about one hundred feet in depth, and expects to have to sink between four hundred and five hundred feet further before reaching the desired ore values, but work will continue until the pay ore is reached, the company being absolutely certain that they are above the same vein as has been developed in the Mercur, the Sunshine and others.

GOLDEN SEALS MINING COMPANY.

The Golden Seals Mining Company own five claims, embracing about forty acres of ground. The Seals lie northwest of the Hecla and east of the Brickyard, adjoining both. It has a shaft 375 feet deep, 1000 feet west of the Hecla shaft. While some 300 feet higher than the Hecla ground, it is expected to strike the ore at any shot, because in this vicinity it has been shown to follow the surface

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of the ground. The shaft is a double compartment one. A whim is used, all appliances for development being first-class. G. R. Bothwell is president; F. R. Hall of Mercur, vice-president; and F. J. Leonard, secretary.

ANDERSON GOLD MINING COMPANY.

The Anderson Gold Mining Company is practically a Nebraska company. Its general offices are at Columbus, Neb., though it has a branch office in Salt Lake, Col. Geo. W. E. Dorsey being the director of its destinies in Utah. The company owns very valuable ground in the Mercur gold belt and near the great Mercur mine. Mr. A. Anderson, after whom the company is named, and who is President of the First National Bank of Columbus, Neb., is also President of the Anderson; Hon Geo. W. E. Dorsey is Vice-President; O. T. Roen, Cashier of the First National Bank, Columbus, Neb., is Treasurer; Mr. E. H. Chambers, a real estate dealer of Columbus, Neb., is Secretary. The directors are: A. M. Post, Chief Justice Supreme Court of Nebraska; A. Anderson, John J. Sullivan, Judge District Court, Columbus, Neb.; W. A. McAllister, ex-State Senator, Columbus, Neb.; Geo. W. E. Dorsey, O. T. Roen, and E. H. Chambers.

The Anderson has a shaft down 140 feet, which is still being sunk. It is not expected that the ore vein will be encountered until a depth of something like 350 feet has been obtained. The ground is most favorably located, being on the south side of what is known as the Mercur Hill—the hill in which the great ore bodies of the Mercur mine have

been exposed. On the same side of this hill, and near the Anderson, is the Hillside, in which Mr. R. C. Chambers of the Ontario is heavily interested. Immediately south of the Anderson group and adjoining it is the Annie, in which veins of ore have been encountered and which is being steadily developed, and of which its owners think more than ever before.

The company owns six claims in a group, which are surrounded by properties in which very high

grade gold ore has been discovered.

The general report of Prof. O. A. Palmer regarding this district is confirmed as to the Anderson group by the specific report of expert A. Burch, of Mr. W. A. Sherman, of the Sunshine and Overland groups, in both of which are ore, and by Mr. J. M. Davis, of the Annie Gold Mining Company, which is also in ore.

The Anderson group is capitalized for \$1,000,000, divided into 1,000,000 shares of a par value of \$1 each.

THE ROVER COMPANY.

The Rover Company has opened its ground by shafts, drifts and incline, and has found ore. Owing to a division of interests in certain claims owned by others than the Rover Company, work was suspended. But it is to be resumed soon. Since work ceased the Gold Dust has exposed values, and it is possible that the Gold Dust developments have as much to do with the resumption of work on the Rover claims as the adjustment of the interests

involved in certain of the claims of which the Rover Company was not the absolute owner.

THE SILVER LODE MINING AND MILLING COMPANY.

These properties are above the Marion and Geyser mines and west. John Dern is president, E. H. Airis vice-president, and F. J. Corker secretary. Only lately have these claims fallen into the possession of the company, consequently practically no work has been done on them. Work will, however, soon begin earnestly, and it is expected soon to be added to the producing claims in the great camp. The capital stock is divided into 100,000 shares of a par value of \$5 each.

THE DEXTER GROUP.

The Dexter group consists of five claims east of the Mercur mine, owned by Messrs, Jacobs, Officer, Andrew and Hines. Two development shafts are in progress of sinking one over one hundred and the other over fifty feet deep. The ore is characteristic of the district. Between the Dexter group and the Mercur mill Messrs. Officer, Jacobs and Peyton own a group that will help swell the output in time. Arrangments are perfected for extensive development.

THE MIDLAND GROUP.

The Midland group of twelve claims lying south of the Glencoe and Sunshine is demonstrating the value of the lower end of the district. The property is under lease and bond to C. H. Scheu, Captain W. C. McFarland, and J. B. Thompson,

who are pushing development work to the utmost. A shaft has been sunk and the veins drifted upon. At a depth of only forty feet a ten-foot ore body was passed through that assayed as high as \$4, but it will be much richer as depth is reached and the vein is unbroken and undisturbed. This group is admirably situated for ease of mining and shipping.

THE HILLSIDE GOLD MINING COMPANY.

The property is on the same hill as the Mercur mine, but over the crest. Its ground faces the Mercur and the Sacramento on the south, and it possesses about 120 acres. It has been developed by two tunnels—an upper 100 feet long and a lower now in 150 feet, and to be extended some 50 feet further. A winz is sunk 50 feet from the end of the upper tunnel, which penetrated the vein for a depth of 30 feet, the values running from \$5 to \$8. The property will be worked through the lower tunnel. A mill will be erected by the Hillside, as soon as the property is opened sufficiently to admit of the extraction of enough ore to supply it with. The company is capitalized for \$5,000,000, there being 500,000 shares of a par value of \$10 each. Richard McIntosh is president and treasurer; Capt. W. C. McFarland, vice-president; C. L. Robertson, secretary. These gentlemen, with C. H. Schue, J. B. Thompson, R. C. Chambers and Chas B. Read are the company's directors.

THE GLENCOE.

The Glencoe group consists of seven good claims owned by E. J. Raddatz and others. The property lies on the Mercur lode and is being

extensively developed in a systematic manner by a liberal outlay of expense. The best grade of ore shows a value of \$7 per ton, and in time the output will be enormous.

JUNO-MENTO.

The Juno-Mento group of eight claims lie west of the Glencoe, between the Mercur and Sunshine. A two hundred-foot tunnel will be used to develop the vein, which carries ore running from \$3 to \$5 per ton.

THE REINDEER.

South of the Glencoe is the Reindeer group of three full and two fractional claims, which is under lease to Raddatz, Wilkinson and Johnson. Two shafts are sunk which have cut the Glencoe vein, and systematic development is now in progress.

HECLA GOLD MINING COMPANY.

This company owns five claims, comprising some 67 acres. The ground adjoins the Brickyard, which is now in ore, and is but 350 feet from the Golden Gate. It has a first-class hoist and boiler, with pumps to handle the water. They have sunk a double compartment shaft down a depth of 425 feet, and expect at any hour to strike the ore, all indications pointing to its being in the immediate vicinity. F. J. Leonard is president; F. R. Hall, of Mercur, vice president; and G. R. Bothwell, secretary. The company is capitalized for \$5,000,000, divided into 250,000 shares of the par value of \$20 each.

THE GOLD BUG.

The Gold Bug group of four claims in Clay Canyon is owned by A. J. Dutton, who is pushing work on the property with good results. A shaft is down 150 feet, and the ore assays up to \$5 per ton on an average.

LITTLE PITTSBURG.

The Little Pittsburg is an old property, and has output considerable silver ore. The company now owns four claims lying in the north end of the district, and is mainly owned by Messrs. Airis and Hubbard. A shaft and tunnel each over a hundred feet are used to develop the ore bodies, which carry values from \$3 to \$7.

THE OLD FRED.

The Old Fred group of five claims west on the strike of the Sunshine, is a splendid property, which is being developed by a five hundred foot tunnel. Thus far the veins cut assay from \$6 to \$10, and the great value of this property is already assured.

BONANZA NO. 2 GROUP.

There are eight claims in the Bonanza No. 2 group, lying east of the Mercur and Golden Gate. There is about one thousand feet of development openings. The ore bodies are very large, and average about \$7 to the ton.

THE JONES BONANZA.

The Jones Bonanza group of five claims extends north from the Bonanza No. 2 group. There are

about three hundred feet of shafts and drifts, and has a good showing.

THE SONGBIRD,

W. S. Fugate and J. Skinner own the Songbird group of claims just north of the Golden Gate property. A shaft two hundred and fifty feet deep has exposed ore bodies that have been drifted upon. Other development is in progress, and the property is all that could be desired in this district.

THE MOLLIE GIBSON.

The Mollie Gibson group consists of five claims, that are being thoroughly developed with the most satisfactory results. The shaft is being sunk to reach the lower mineral body.

THE EAGLE (NORTH END).

Near Lion Hill is the Eagle group of four full and two fractional claims which are showing up fine with development. Its future is full of great promise, already assured of success by the ore bodies thus far encountered.

RED CLOUD.

Just north of the Sunshine is the Red Cloud, with a shaft three hundred feet deep. At 260 feet the vein is very large and carries satisfactory assays. The Red Cloud has developments at other points and its owners, Messrs. S. B. Milner, T. A. Wickersham and others, have contracted for further work.

THE MARION.

The Marion Mining Company have eighty acres of rich ground lying just north of Mercur City, on which they have a splendid 50-ton mill. The development consists of fully three miles of drifts through the vast ore bodies, which are of a uniform grade, and average about \$7 to the ton, and the mining and treatment costs less than \$3 a ton. The Marion mill was next after the Mercur in the district, and is the only mill in the camp that has a water suupply of its own. In 1895 the mill handled 20,000 tons of ore, and it is probable that in 1896 25,000 tons will be treated. The property pays substantial dividends, but as it is a close corporation, no specific information is given out for publication. The companys officers are: Mr. Theodore Bruback, Pres't.; Mr. Jos. Smith, Vice president; Mr. S. T. Pearson, Secretary and Treasurer.

THE MERCUR.

The most successful mine in the Camp Floyd district is the Mercur. The story of it has been told in prose and poetry so many times and oft that told again in the most fascinating manner on even so interesting a theme would be tiresome under the circumstances and conditions. Fifty thousand tons of ore were treated at the company's mill in 1895. Over \$100,000 were spent last year in improvements and purchases of additional property, and notwithstanding this outlay \$175,000 in dividends were paid. The property of the Mercur company

has been constantly increasing in value. Over one hundred men are employed in the mine, and about thirty at the mill. Development in the Mattie No. 4 and Lucky Star accessions of 1895 have been of such a character that the value of this company's property is quite beyond the estimate of reasonable judgment.

No group of claims in the camp is better known than those owned by the Mercur—the town and camp practically taking its name therefrom. It possesses about 160 acres of ground, including the Mattie group. The mine is worked by tunnels, which tap the vein whence incline shafts follow the ore. Of these there are three, one on the Mattie, one on the Ruby, the other on the Resolute claim. So far two veins have been opened in this property, the lower being 10 to 30 feet in thickness, the upper 5 to 10 feet in thickness. Ore that will pay for working was exposed in a cut much lower down, but no effort has so far been made to develop this. The company began paying dividends September 1, 1893, and since which date it has paid out in dividends \$475,000. About six thousand tons is produced monthly. The mill is located about four miles by wagon road and seven miles by rail from the mine, being put where it is because of a lack of water at the time. It has a full capacity of 200 tons daily, which is the mine product. The Mercur is capitalized for \$5,000,000 divided into 200,000 shares of a par value of \$25 each. John Dern is president and general manager; J. Heimrich, vice-president; E. H. Airis, secretary; and George

H. Dern treasurer. These form the directory, with the addition of the name of W. S. Brown.

THE GEYSER.

The Geyser property consists of four claims adjoining the Marion, in the town of Mercur. The company's mill is one of the most modern leaching plants in the country, and can treat from 125 to 150 tons of ore daily. This property is considered to be one of the best in the Camp Floyd District.

THE SACRAMENTO.

The Sacramento group is a dividend paying proposition of considerable dimension. The four claims lie southwest of the Mercur group and of the same character and extent of the Mercur. The company's cyanide mill has a capacity of 200 tons daily. The ore is taken from a main tunnel in 300 feet, from which are many cross-cuts into the great veins of ore. Another tunnel is in 100 feet, and the mine has enough ore reserves now blocked out to keep the mill in operation for years to come.

BRICKYARD GOLD MINING COMPANY.

This company has nine claims, comprising about 140 acres of ground. The company is capitalized for \$1,000,000, divided into 500,000 shares of a par value of \$2 each. Altogether about 1,500 feet of work has been done in shafts, inclines, tunnels and drifts. A shaft is down 460 feet and in ore, and from this point drifting is progressing in the vein to the northwest and southeast, that being the course of the vein through the district. The ore

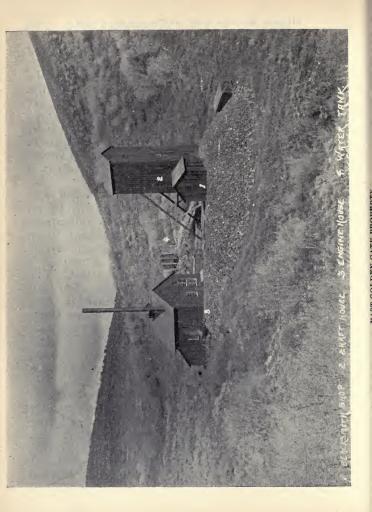
runs from \$4 to \$15 per ton, the average being such as will pay well. The showing is such at present as to make it almost a certainty that a contract for a cyanide mill will be let by October 1st, 1896. The company's officers are: E. H. Airis, president; E. G. Rognon, vice-president; Geo. Dern, secretary: W. S. McCornick, treasurer; who, with Geo. H. Robison, H. A. Cohen, and E. A. Wall are directors. Col. Wall, so well and favorably known in the district, is managing the property.

THE EAST GOLDEN GATE MINING COMPANY.

The East Golden Gate group, embracing about 110 acres of surface ground, has been experted by some of the best informed mining men in the west. Without exception they have expressed the unqualified opinion that the East Golden Gate had the same bodies of ore that have so far been exposed in the Marion, Geyser, Sacramento, Golden Gate and Mercur mines, and by more recent develop-ments in the Brickyard, the Gold Dust, the Herschel and the Hillside. Work was undertaken with the profoundest confidence by the directors of the company and has been pushed with the most persistent assiduity ever since. The best machinery was secured, and then, because the depth could not be made as fast as was desired, a contract was entered into with the owner of an eight-inch churn drill capable of sinking between twenty and thirty feet per day to push through to the ore bodies. It is easy to keep track of the formation and learn the values passed through, as the dirt from the drill is cleaned out every two feet and is assayed,

so that the management is in no danger of missing a good thing when it comes along. Moreover, the wisdom of pursuing this plan of prospecting will be better understood when it is borne in mind that the veins in Mercur lie almost horizontally, are more like blanket veins, so that the only way the East Golden Gate can escape getting the ores by the churn drill will be because there is no ore under the ground owned by this company—a condition that no one acquainted with the district believes can exist.

The contract has been let to sink 1,000 feet below present workings, though there will be no difficulty of sinking 2,500 feet in this formation. As it is, all the machinery of the company is in place ready to be started and work on the double compartment shaft resumed on almost a moment's notice once the great ore body is encountered. The shaft is now down a distance of some 350 feet. There is also another favorable feature in connection with the work of the East Golden Gate. The depth at which the ore will be found will make the assays more than satisfactory for the reason that with greater depth there are always higher values in the Mercur district. Then it will also determine the value of a vast territory in the immediate vicinity of this property, and will extend the possible field of operations much farther to the east. There is no aspect of the work now being prosecuted at the expense of this company that does not indicate prudence on the part of the management as well as a laudable public spirit. A cut is printed of the works of the East Golden



Gate at the time the shaft—a double compartment

one-was being sunk.

Still another advantage in connection with the drilling in the East Golden Gate ground should be borne in mind. It is that the veins can all be explored by the means at present being pursued. It is believed there are several veins underlying each other in the Mercur district. So far very little depth, comparatively, has been attained, the lowest workings to date being in the Golden Gate. So that the East Golden Gate is in a position to discover what is under the developments in the lowest workings of the Golden Gate and in which the richest grades of ore are now to be found—a fact that repeats itself in all the workings in the district.

The East Golden Gate is but 1,500 feet from the underground workings of the Golden Gate, in which, as elsewhere stated, there is already exposed between \$5,000,000 and \$8,000,000 in gold ore. The workings in the latter mine are toward the East Golden Gate, and are of such a character as to justify the assertions of the experts who have examined the district and the properties therein that the veins now making of Mercur the greatest gold camp in the world are not to give out before the ground of the East Golden Gate has been reached, but that the continuance of work is as certain to reward those interested in the mines with success as the sun is to shine on the morrow.

CAPTAIN DE LA MAR'S PROPERTIES.

The possessions of Captain De Lamar in the Camp Floyd district are the envy of many and the

admiration of all in any way acquainted with their character. The most notable is the Golden Gate, a group of claims in the heart of the producing mines, embracing some two hundred acres. In the Mercur camp he owns altogether some seven hundred acres, there being beside the Golden Gate, the Tough Nut, Merritt, Hard Times and other groups that are his personal property, while he is also interested in the Rover, the Brickyard and others. Work is now progressing in the Brickyard, and considerable has been done on the Rover. Apart from the work necessary to have the claims patented, nothing has so far been done to develop any of Captain De Lamar's personal properties, save the Golden Gate. On this four shafts have been sunk—the north shaft, 170 feet deep; south shaft, 45 feet; Magpie shaft, 50 feet; and main shaft, 480. Ore was first exposed in the south shaft, from which drifts were run in many directions, and today there are not less that 11,000 feet of underground developments in the Golden Gate mine, by far the greater part in pay ore. Mr. H. A. Cohen, who directs all the varied interests of Captain De Lamar in the west, including those in Nevada, holds the values of the Camp Floyd district to be found in a stratification and not in a vein, as generally supposed, there being in this stratification places where the values are slight and other portions in which the values are very high; but whatever values exist are found 'in one stratification, which has been shown to be over 200 feet in depth in places by the Golden Gate workings. The ore in this property runs from \$3

to \$100 to the ton, the average being \$15, and as the developments in the slight area worked in com-parison to the De Lamar possessions in Mercur have exposed not less than 400,000 tons of ore that will yield an average of \$15 to the ton, a computation as to the wealth in sight on this



GOLDEN GATE SHAFT HOUSES.

property may easily be made. Save for experimental purposes, no mill has yet been erected to treat the Golden Gate ores. Captain De Lamar is not in need of money, and as the percentage of saving is materially exhanced by the working of a larger tonnage, the mine has been developed so as to ascertain what sized mill the ore bodies would warrant. The process of working the Golden Gate ores, which carry a marked percentage of arsenic. has been solved. The experimental mill has run for over three months successfully, the extraction in the base ores being from 83 per cent to 94 per cent. with a cyanide loss of about 11/4 pounds per ton. Plans are now out for a mill of 400 ton capacity daily, and the time for its erection will be determined by Captain De Lamar upon his approval of the plans.

Captain De Lamar also owns one-half the Gold Belt Water Co., which is referred to else-

where.

De Lamar, Nevada, the Captain has another great property, on which a cyanide mill is running, and which handles 6,500 tons per month. His possessions there embrace about twenty claims. In one of these, which differs from the stratification in the Golden Gate in that it is vertical while the latter is horizontal, a vein is exposed that is 180 feet in width in places. The ore will average \$30 to the ton, while the loss of values is conceded to be the least known to any cyanide mill in the world. The mine is developed to a depth of 1000 feet, and sinking is to be continued at once from this point. Altogether 22,000 feet of underground workings exist in the De Lamar Nevada property, while the vein and values both hold out in the lowest workings-the former 180 feet in width, the latter \$30 to the ton. This



MR. H. A. COHEN, MANAGER OF THE DE LAMAR PROPERTIES.

property is also under the management of Mr. H. A. Cohen, whose offices are in the Dooley Block, Salt Lake City.

THE CANNON OPERATIONS.

The Cannon Company are doing an immense amount of work in developing the several properties in which they are interested, under the careful and systematic guidance of the chief promoter Hon. Angus M. Cannon who has done perhaps more than any other individual to push the Camp Floyd district to the foremost place of mining in Utah. The Cannon group adjoins and is just east of the Mercur, and contains eighty-three and one-fourth acres. With a modern hoisting plant a shaft is being sunk, which is now down over 420 feet, having cut three ledges of good ore. The Buckeye group of 180 acres lies between the Geyser and Marion. The first ledge is sixteen feet through, the second fourteen, and the third sixteen feet. Into these, drifts are being run, and the ore bodies blocked out for rapid and systematic extraction. One drift is sixty, one two hundred, and one four hundred feet.

The Nora group of five claims consists of eighty acres lying west of the Eagle. A shaft one hundred feet deep is through considerable ore. The Goldbug on the north and the Buckeye near the Geyser are also good prospects, with large bodies of ore averaging as high as \$8 per ton. The Retriever, near the Nora and the Climax, near the summit on the road to Ophir, are being systematically developed for output. The Hecla group is bonded to



THE TOWN OF MERCUR.

other parties, and is described under another head. There is an one hundred-foot shaft on the Little Ruth group of fifty-five acres. In three claims on the Summit Flat the company has plenty of \$6 ore. The ground is all of great value, and nearly all patented. The company is incorporated for 10,000 shares at \$5 each. The officers of the Cannon Company are: Angus M. Cannon, president, manager and director; George M. Cannon, vice president and director; Lewis M. Cannon, secretary and treasurer and director; John M. Cannon, attorney and director; and F. J. Cannon, director. It is the intention of the company to continue to drift eastward until all the veins in the property are cut by the drifts.

MERCUR-MAMMOTH.

The Mercur Mammoth Mining Company, capitalized for 550,000, shares being of a par value of \$1 each, owns six claims favorably situated near paying properties in Mercur camp. Little work has been done on the group, but the property is looked upon as very promising and very desirable ground.

SEARCHLIGHT GOLD MINING COMPANY.

The Searchlight Gold Mining Company have three full and two fractional claims adjoining the Sunshine. A shaft is now down 175 feet through blue lime as hard as adamant all the way, and the sinking will not cease until the three hundred level is reached. Frank Morehouse has the contract of sinking, and an idea of how hard the ground is may be had when it is known that one shift cannot drive

three holes. This company also has a large group of claims still south of the Searchlight. R. C. Chambers is president of the company; John Dern, vice-president; John J. Daly, treasurer; Simon Bamberger, secretary and general manager. John Beck and C. W. Miles are, with those mentioned above, the directors of the company. There is no question about the company having plenty of ore when they once reach it.

GOLDEN GATE EXTENSION.

The Golden Gate Extension Gold Mining Company has about seventy acres of ground in the heart of the producing porperties in Mercur camp. Its ground joins that of the Golden Gate. It has already sunk a shaft over one hundred feet, and has contracted to have it sunk four hundred feet further, at which point the ore bodies will be reached. The company is capitalized for \$2,000,000, having 400,000 shares worth \$5 each at par. J. R. Walker, Jr., is president; C. H. Griffin, secretary. These two gentlemen, with George H. Robinson, Geo. Kislingsbury, and C. A. Walker are the directtors.

THE PEEPSTONE DISTRICT.

The Peesptone district lies east of Sunshine and Mercur. It is of the same general formation, and considerable work has been done. Across the valley below Sunshine, and on down to Pelican Point, on the shore of Utah Lake, the ground has been staked off, work done and values obtained. Far over in Skull Valley it is claimed that the same

showing of gold ores is made, veins two hundred feet wide having been exposed. While many of the discoveries and hopes of claim owners are rather the result of enthusiasm than good judgment, there is yet no rational limit to be placed upon the Camp Floyd gold belt area.

AROUND CEDAR FORT.

South-east of the Mercur mill is the Cedar Fort district, in which are the Mercur King, Gold King, Free Gold, Honolulu, Don Maguire and other groups of claims that are all being developed. Ore running as high as \$11 has been obtained there in quantities.

GOLD COIN GROUP.

The Gold Coin group of mines is owned by Mr. B. T. Lloyd, one of Salt Lake's Councilmen. Mr. Lloyd is in the mining and stock brokerage business, dealing, however, mainly in Mercur properties. He has done \$5,000 development work on the Gold Coin group, in tunnels and shafts, drifts and winzes. As the property is abutted by the Brickyard, the Seals and the Hecla, Mr. Lloyd is recognized as having in this 175 acres a very valuable possession. The Gold Coin ground is bonded for \$35,000.

Mr. Lloyd is also principal owner of the Syndicate Mining and Milling Company, which owns a group of six claims at the mouth of Lewiston Canyon, about two miles southwest of Mercur, where the showing is admirable. He is also interested in eight claims at Twelve Mile Pass, as well as in



HON. W. S. MCCORNICK,

other groups in the same district and in Davis County. Mr. Lloyd can be relied on in all he says. He may be mistaken, but he will not knowingly deceive. His office is 206 McCornick Block, Salt Lake City.

MERCUR GOLD DUST MINING COMPANY.

The above company owns a group of fourteen claims, in all about two hundred acres, practically surrounded by the Rover, Marion and Geyser groups. The Brickyard lies west of it. Develop-ments in the Gold Dust group have been so satisfactory that many of the undeveloped properties are already tying to it as a reason for faith in their own prospects. It has been developed by three shafts, respectively, forty, eighty, and cne hundred feet deep. Two tunnels have also been run in on the group, one 250 feet the other 350 feet. These tunnels, following the vein, are in ore, as are also the shafts; and as the workings have developed ore along the vein at points 2,000 feet apart, it will readily be seen that the Gold Dust is a mine among mines at Mercur. The ore has also been exposed by works along the outcrop of the vein. Values ranging from \$3 to \$15 have been obtained. The ground is to be thoroughly developed and prospected before plans for a mill will be gotten out, so as to determine the capacity requried. The company is capitalized for 300,000 shares of a par value of \$5 each-\$1,500,000. W. S. McCornick is president; Josiah Barnett, secretary and treasurer. Judge John A. Sheet, W. S. McCornick, J. E. Bamberger and W. V. Rice constitute the directory.

About September 1st the deepest shaft went into a body of ore at a depth of about one hundred and twenty feet, which showed higher values than any previously had. This only adds to the testimony of every property exposing ore in the district—that higher values come with greater depth.

There is no longer any question about the value of Gold Dust stock.

OTHER PROPERTIES.

The Laura K and Sue N. are making a good showing with tunnel development. The success of these properties is already assured.

The Pacific group of five claims is an assured proposition of as great merit as anything in the

district.

The Electric Light group of four claims lying west of the Sunshine is being operated by McFarland, Thompson and Scheu. The shaft will be sunk to the four hundred before the ore is stoped.

The Hard Times and Panic are both showing

up otherwise.

W. C. B. Allen's group of five claims near the Sunshine is deemed a great property, with

immense prospects assured.

The list of properties in the Camp Floyd district that are being developed are: Abe Lincoln, Annie, Annie Laurie, Anderson, Bear, Belcher, Bonanza, Brickyard, Brooklyn, Brown, Buddee, Cannon, Confederate, Comstock, Dexter, Douglas, Eagles, East Golden Gate, Electric, Elko, Elmwood, Friday, Gentile Belle, Geyser, Gold Beach, Gold Bug, Gold Coin, Gold Dust, Gold Flat, Golden Gate.

Gladstone, Glenco, Great Eastern, Guelph, Hard Times, Hazel, Hecla, Herschel, Hillside, Hornet, Horse Shoe, Juno, Keystone, Keystone No. 2, Keystone No. 3, Keystone No. 4, Lillian, Little Pittsburg, Major, Malvern, Marion, Mercur, Mercur Boy, Merrett, Mollie Gibson, Mormon Girl, Mountain Gem, Nora, Old Fred, Old Guard, Overland, Raven, Reindeer, Rover, Tough Knot, Trinidad, Sacramento, Seal, Search Light, Silver Lode, Sir Victor, Song Bird, South Geyser, Sullivan, Surprise, Sunshine, Victor Wahoe Boy, Wonder, etc.

GOLD BELT WATER COMPANY.

To the Gold Belt Water Company, more than to any other cause, perhaps, is due the present prosperous and permanent condition of the Mercur Gold Belt district. After the ores were known to carry values to justify their working, the problem was as to how water could be gotten. The Mercur mine shipped its ores four miles, and, as a matter of fact was forced to help build a railroad and to buy a ranch in order that they could be treated at a satisfactory profit. Then if the ores contained sufficient value to justify their shipment a very heavy expense and loss was involved and there could be no town built at Mercur of a permanent character because of the absence of water. The problem was solved by Mr. Theodore Bruback and some associates by securing the waters of Ophir Creek.

They carried the water a distance of 7,000 feet through an 18-inch pipe to a pump. The fall was sufficient to give force enough to operate the pump and lift the very waters which furnished the power to a pendicular height of 1,500 feet, traversing in that distance, however, over 12,000 feet to a point above the highest workings in the Mercur District. Thence by gravity the water is distributed along sub divided mains aggregating not less than ten miles in extent, reaching every mine in the district now being operated down to Sunshine and below, supplying the towns of Mercur and Sunshine also. Since that time both towns have continued to grow, mills have been erected and contracts are out today for other mills to be erected and a period of permanent development has been inaugurated which promises to make Camp Floyd the greatest gold mining camp on the face of the earth.

The putting in of this plant involved an outlay of something like \$75,000, and this money was invested at a time when the State and Salt Lake City were full of "doubting Thomases," who continually questioned the soundness of the investment and disputed the permanence of the district; but the conclusions of Mr. Bruback and his associates have been justified by succeeding events, and while very little is thought of this undertaking in connection with the development of Mercur gold fields there has been no factor of more importance in making the district what it is than the nerve and energy of Mr. Bruback as manifested in the Gold

Belt Water enterprise.

One thousand men found employment in and from the mines of the Cottonwoods during the summer of 1870.

The Salt Cake and Mercur Railroad.

The Salt Lake and Mercur Railroad is a little over elven and one-half miles long, extending from Fairfield to Mercur. Its opening and business career commenced with freight hauling on January 21, 1895, and the passenger service was inaugurated June 6, 1895. The road starts from Fairfield at an elevation of 5,000 feet, crosses the Oquirrh Divide at an elevation of 7,000 feet and drops to Mercur at an altitude of 6,000 feet. The road is standard gauge, and does a thriving business under the management of its projector, J. G. Jacobs. Its building is recognized as a marked engineering feat.

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UNION PAGIFIC

"THE OVERLAND ROUTE."

With thundering speed and mighty force

Came the panting, throbbing, iron horse; Then desert bloomed, and mountains old

Sent forth rich streams of precious gold; Cities sprang up on every hand;

Prosperity came with the "Overland."

There has been no greater factor in the development of the manifold mineral resources of this region than the Union Pacific Railroad. famous districts have only to compare their present advanced condition of development and production with the undeveloped and comparatively unknown sections that are isolated from the outside world by the absence of rail communication, in order to gain adequate comprehension of the part played by the Union Pacific in the shaping of their destinies. This company has at all times kept pace with the tremendous industrial growth and rapid development of western resources, extending its branches and feeders into every mining district and encouraging and making possible the building up of communities and the development of rich mines. The

total mileage of the great system is 4,442, while in the mining regions of Utah and Idaho it has 1,421 miles of track, tapping every mineral region and affording an outlet for the ores of thousands of mines. The period of active mining operations in Utah dates from the advent of the Union Pacific, and it may truthfully be said that the first locomotive whistle in Utah heralded the birth of the mining industry in this State. So great has been its faith in this region that it has in many instances kept in advance of the country's growth, extending its lines into undeveloped districts which have subsequently became great producers.

Mercur, Utah's world famous gold camp, with its Mercur, Golden Gate, Sunshine, Geyser, Marion, Sacramento and other rich gold mines and five cyanide mills in operation, is reached only over

the Union Pacific.

Eureka, Mammoth and Silver City, the camps of the great Tintic district, the greatest producer of gold and silver in Utah, are reached by direct Union Pacific line from this city, and for years the Union Pacific gave to the ores of this district their only outlet to market.

Park City, made famous by its Ontario, Daly, Daly West, Silver King, Anchor and other great producing mines, was given its first railroad by the Union Pacific, a branch extending from Echo, on the main line. All the ores shipped out of this camp reach the smelters over the Union Pacific.

The southern extension of the Utah line was built chiefly to aid in the development of the mines of that section, and at Frisco, the terminus, is

located the wonderful Horn Silver mine, while the other mining districts at Beaver and Millard counties are all reached by this line and by no other.

The new State Line district, in the western part of Iron County, which is just now the scene of rich discoveries and promises to become an important camp, can only be reached via the Union Pacific to Frisco.

Pioche, De Lamar, and other important camps in eastern Nevada are directly reached via the Union Pacific to Milford.

The Tooele branch of the Union Pacific extends to Ophir and other districts west of Salt Lake City.

A quick and satisfactory train service is given to all of these Utah camps, prompt connections are made and the train accommodations are first-class. Parties from the east desiring to visit the Utah mining districts will find it greatly to their advantage to purchase their tickets via the Union Pacific.

All of the important mining districts of Idaho are reached via the Union Pacific. It is the only line to the Boise gold belt, the Owyhee country, Payette and Florence district, Boise Basin, Elmore and Wood River mines, Lemhi and Custer counties

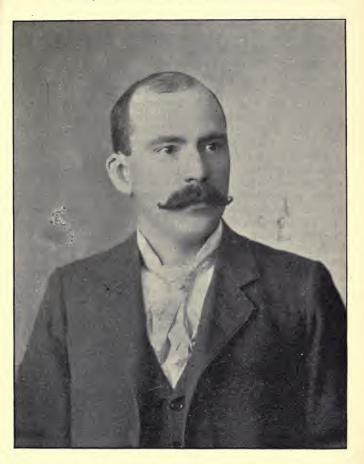
and the Snake River placers.

For the business man, as well as the tourist, the Union Pacific is far in advance of all competitors. It is the only line now running through solid vestibule trains to Chicago without change at the Missouri River. Through Pullman Palace Sleepers, latest improved tourist sleepers, free reclining chair cars, elegant day coaches, and the only line operating Pullman dining cars out of Salt Lake.

The mountain division is operated from Salt Lake City headquarters, and is in the hands of a staff of as capable and obliging officials as it has ever been any road's good fortune to secure. Mr. D. E. Burley is the general agent of the passenger department, Mr. S. W. Eccles is at the head of the freight traffic department, and Mr. W. H. Bancroft is general superintendent of the operating department.

Mt. Nebo Land and Irrigation Company.

Mining and Irrigation are now and always will be the temporal salvation of Utah. Among the most conspicuous enterprises of the state in the redemption of its barren lands is that of the Mount Nebo Land and Irrigation Company, of Salt Lake, prominently identified with which are Messrs. Gill S. Peyton and E. G. Rognon, who, together with L. H. Curtis, J. W. Culley, M. A. Lathrop and H. W. Brown are the officers of the corporation. It has finished a complete system which will irrigate 25,000 acres of the finest lands in the famous Utah Lake Valley, known as the Garden County of Utah. All this land has been brought under cultivation by the diversion and storage of waters, under the intelligent guidance of nervy men, from channels where it previously accomplished no public good. By turning it on the lands that lie near the great mining camp of Eureka and the wonderful mining district of Tintic, they have given an opportunity for the making of farms and market gardens and



E. G. ROGNON, LAWYER, MINE OWNER AND PROMOTER.

orchards in the immediate vicinity of a market that is today and always will be one of the best in the state. It makes little difference how the water to be utilized on these formerly barren lands has been rescued, though it has been accomplished with no little cost and a great deal of engineering ingenuity; but it is of vital importance that the work has been so accomplished as to guarantee as faithful a supply as need be. Investigation will show that this has been done and the expenditure of money has been liberal to secure the assurance of permanence in the flow. Not only has the company secured an original water right, but it has constructed what seems to be an indestructible reservoir from a half to three-quarters of a mile in width and about five and a half miles in length, with an average depth of twelve feet. This reservoir is already stocked with the most desirable food fish. It is now capable of holding 838,000,000 cubic feet of water, and at any time can be made to store 1,300,000,000 cubic feet. Two lines of railway run practically through the tract, and it is not surprising that a great many eastern parties, and particularly parties from drouth ridden and cyclone whipped districts, are already purchasing lands in the new and well. favored district opened up by the Mt. Nebo Land and Irrigation Company. No better lands are to be found in the United States, and since irrigation gives the safest assurance of returns for the labor of the husbandman-and that is always the incentive to persistent toil-it is a safe conclusion that the company having offered such an opportunity will not long have the lands left on its hands,

especially when the favorable terms offered on farms and orchards from ten acres up are generally known. Mr. E. G. Rognon is the secretary and treasurer of the company, Mr. Gill S. Peyton president. Their offices are in the Atlas Block, Salt Lake City, where personal calls or written inquiries will receive the fullest and promptest attention.

Mr. John Beck.

Mr. John Beck, owner of many mines, and discoverer of the remarkable Bullion-Beck mine, is one of the most notable and enterprising men in the State of Utah. Today a millionaire, he has known fully what poverty is. But no condition has been equal to change a being blessed with an unbounded hope and a confidence in his destiny that cannot be shaken. He is president and principal owner of the mine that bears his name—in fact, he controls the property—which is more fully described elsewhere. He is vice-president of the Northern Spy Company, owning a group of claims near Silver City, and which produce gold, silver lead and copper. He owns about nine-tenths of this mine, which is now being worked under lease. He is president of the Buckeye Mining Company, located a little south of Silver City. This property is now shipping ore which yields gold, silver and lead. It is one of the promising properties of the district. The Governor, located above Silver City, is his personal property, now being worked under

lease to Mr. E. Kirby, Superintendent of the Bullion-Beck mill. It produces gold, silver, lead and copper. He owns the Black Cloud Iron mine, situated north of Eureka. He owns four-fifths of the Crown Point mine, which adjoins the Bullion-Beck. Its product is gold, silver and lead, and is at present being worked. He also owns the North End, being an extension of the Crown Point. He is vice-president of the Trapper Mining Company, which owns claims near Ketchum, in Idaho, that yield gold, silver and lead. He owns a one-third interest in the Prairie Basin claims near Salmon City, in Lemhi County, Idaho. These are placer as well as ledge claims, and yield gold with a heavy percentage of tin. He also possesses large magnesia deposits in Idaho, near Soda Springs, the product being 95 per cent pure and boundless in quantity. In the Newton mining district, Beaver County, this state, in what is also called the Sheep Rock district, he has some heavy interests that give most favorable promise of future growth and yield. In Uintah County he owns nine-tenths of the claims of the Utah Asphalt and Varnish Company, and of the Ashley Coal Oil and Gilsonite Company. The former owns fifty-five asphalt claims and the latter six.

In these claims coal, crude pretroleum, as well as pure bitumen in soluble form are found. The bitumen boils up from springs in a country that is full of loose sand, and the blowing winds drive the sand into the springs, the result being an asphalt product in the exact proportions needed for paving purposes, viz., 16 per cent bitumen and 80



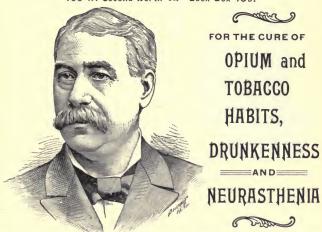
MR, JOHN_BECK.

per cent. sand, the balance being moisture. The future prospects of these two companies cannot be really estimated, so great they are. He is president of the Green Onyx Company, whose fine quarries are near Lehi, and owns onyx quarries personally. He is also the owner of extensive beds of fire clay and kaolin near Lehi, Utah County, this state. Assay tests show that these clays contain 33 per cent alluminum, while no superior fire clay for manufacture of fire brick is known. He is one of the originators in the movement for the manufacture of sugar from beets in Utah, and aided in having the factory located in Utah County. He is still a heavy owner in the Utah Sugar Factory, and one of its directors. He owns a big orchard in the same county, and now has over forty acres in grapes alone. He owns the Saratoga Springs, near Lehi, which give a flow of pure, unmineralized warm water, which he has utilized to afford public bathing. He is also the owner of the famous Beck's Hot Springs, in the north end of Salt Lake City, and which are reached by three lines of steam railways. And this is not all that he is interested in, but such a list affords some idea of the character and enterprise of Mr. John Beck.

Oil was first discovered in Utah in the Bear Lake Valley in 1870, in Spanish Fork Canyon in 1878, and flowing oil wells were opened in Emery County in 1883.

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The Keeley Treatment Has Done More to Help Humanity, in its Brief Time than any other Reform Movement has Accomplished in Centuries

The Keeley Treatment is adopted by the U.S. Government for use in the National and State Homes for disabled Volunteer Soldiers and Saliors, as also the Regular Army, and the Legislatures of Colorado, Louisiana, Maryland, Minnesota, North Dakota Oklohama Territory and Wisconsin have recognized it by the enactment of inebriate laws for the sending of worthy indigent patients to Keeley Institutes at public expense.

PRESIDENT ANGUS M. CANNON says of the Keeley Treatment:
"I thought it impossible for one man to do what Dr. Keeley has
done scientifically in counteracting the terrible evils of intemperance. His treatment strengthens men physically, mentally and morally. Under these circumstances they are given another opportunity
to become men amongst men. Is there a man who loves his fellow
beings that can fail to say: I view Dr. Keeley as engaged in a most
commendable work? I trust his good work may continue,"

INQUIRIES STRICTLY CONFIDENTIAL.

Deep Creek District.



ILL railroad facilities are afforded for transportation the Deep Creek district must of necessity remain apathetic an This part of Western Utah and Eastern Nevada is filled with great zones of gold, silver, copper, lead, nickel, iron and other precious metals. the present time some of the mines are transporting ore by wagon an hundred miles over mountains and desert to the

CHAS. C. VAN ALSTINE. railroad, but a majority of the claim owners simply do their assessment work to hold their properties until a railroad is built into the territory. Of late several important gold discoveries have been made, not to mention the opening of less valuable mineral veins which could output several train-loads of ore each day and employ thousands of men were the conditions favorable for transportation.

The records of the Clifton Mining district show about 2500 locations, of which every one had mineral at the surface. There are some thirteen contiguous districts which quite equal the Clifton. Next to a railroad, a smelter and custom mill are badly needed, all of which must come in time as the most natural sequence of the conditions of the country. Water, fuel and fluxing ores

in abundance, and with a down-grade pull from all the mines there is a most positable opening for some enterprising smelter man or firm. This ore belt is the most extensive in Utah, and its most perfect development depends chiefly upon a smelter. The expense of hauling bullion from the smelter to the railroad, and coal and coke from the railroad to the smelter, is not an unreasonable proposition, all things considered.

Years ago Prof. Hadyen, in his geological and mineralogical reports to the government, declared that this particular area of Utah would eventually become the greatest gold-producing region in the

United States, and perhaps in the world.

The country rock consists of granite, white and blue limestone, porphyry, slate, quartzite, all shades of marble, onyx, fire rock of the very best grade; some sandstone and numerous other kinds forming the districts of Fish Sprigs, Willow Springs, Furber, Clifton, Glencoe, White Horse, Eagle, Munsey, Johnson, Spring Creek, Kinsley, Snake Valley, and many other points not yet formed into mining districts. All over the country there are continuous changes in the formation. Here a dyke, there a ledge, and yonder a vein, and then a general intermixture in the float found, which was occasion for perplexing and confounding the prospector in the early days, but now the great mineral belt is quite thoroughly located. The trend of the contacts, dykes and veins is generally northeast and southwest, and as a rule are true fissure with positive walls, and many of them carry tale casings, indicating permanency in depth.

The Fish Springs District is the smallest in area in this region, and has proven wonderfully rich in silver-lead ores, and for five years has been a continuous shipper. The principal and most developed mines are the Utah group and the Galena, whose wealth, as well as that of some less developed mines, is beyond human calculation.

THE UTAH AND GALENA.

The Utah Mine and Galena Mine, in the Fish Springs District, are two of the most phenomenal silver and lead propositions in the world. To Charles C. Van Alstine is due the credit of the discoveries, made after the district had been tramped over by hundreds of prospectors who claimed there was no pay mineral in that region nearer than the Deep Creek country. However, Mr. Van Alstine was an old Colorado pioneer in the prospecting and mining business, and had made many valuable discoveries in his time, and when he picked up some Bird's-eye porphyry float he knew there was mineral in that vicinity. It was in 1890, while traveling along the old stage line between Utah and Nevada, that he made the discoveries of the Utah and Galena mines, the outcropping ledge being fully a half mile from the place where he first picked up the float. The ledge is of great extent, and on it are located also the Miner's Dream, Ogden, Dora and Mayflower. The vein is a true fissure, which averages about five feet of clean galena ore that is easily smelted, and returns about \$140 to the ton. The shaft on the Utah is down 500 feet, and the one on the Galena

400 feet, through mineral all the way, and the mines are perfectly dry, employing even in these times some forty men the year round.

The value of this property can be better appreciated when it is known that the ore is shipped by wagon seventy-five miles to Deseret,



W. SCOTT CRISMON, OF THE UTAH AND GALENAMINES.

and thence one hundred and twenty five miles by rail to the smelter, and after cost of production, transportation and smelter charges leaves a handsome profit. This ore is conceded to be the finest silver and lead product in the state. Up to date the Utah and Galena Companies, which are composed of Messrs. C. C. Van Alstine, George and W. Scott Crismon, Elizabeth T. Crismon, E. M. Weiler and others, has produced \$483,676 worth of ore since the discovery of the mines, and when a railroad is built into the district the output will be increased tenfold. The vein is clearly defined for 4,500 feet along the properties of this company, and at any point the same character of ore is discoverable as

at the points where work has been done.

The developments in this region dispose of the fear of so many that the Deep Creek country offered nothing but surface minerals. As a matter of fact the ore shows no lessening of value at the depth of 500 feet. Did it stop there the Utah and Galena mines would prove an everlasting fortune to all interested, since the ground above the 500 foot level contains all the wealth a reasonable body of men could desire. But the ore goes deeper, and therefore the work on these mines has done more than all else to beget confidence in the permanence, depth and richness of Deep Creek properties generally.

VULCAN AND CACTUS GROUPS.

Messrs. Geo. C. Whitmore, C. S. Tingey, and Mr. Jensen and others have a bond on a group of claims known as the Vulcan, at Fish Springs, from which some very rich ore has been taken. For a time the ore was lost, but having confidence in the property, they still prosecuted the work and were rewarded in August, '96, by the reappearance of the ore in larger quantities and higher in grade than before.

The Vulcan is near the Utah and the Galena mines.

There is little doubt of its permanence.

A company is incorporated to work the Cactus group adjoining the Utah and Galena mines. The incorporators include Mr. Chas. Crismon, under whose management the Utah and Galena mines have been so thoroughly and capably developed, as well as Mr. T. R. Cutler, Manager of the Utah Sugar Company, and other Lehi gentlemen. Mr. Crismon has resigned from the superintendency of the Utah and Galena mines to take charge of the development of the Cactus Company's claims, in full faith that they will soon rival any properties in that section.

THE CLIFTON DISTRICT.

The Clifton district is the oldest in that region, and dates its first locations back to the White Pine excitement in Nevada. It is a fabulously rich treasure-cask, twelve miles square, and contains about every precious metal known. The Cane Springs Consolidated Mining Company has the most important mines as far as development has gone. The vein matter carries free gold, and starting with a three-foot vein at the surface it has widened to fifty feet at a depth of four hundred feet, and the future of this property is simply glorious. Dutch Mountain and Gold Hill are vast granaries of fabulous wealth in gold, silver, copper and galena, whose tonnage is beyond the scope of human computation, as thus far shown by the development.

Three miles South of Gold Hill is the Troy

group, assays from which run from \$600 to \$10,000. Ruby silver and black sulphuret, samples have assayed from 300 to 3,500 ounces in silver. Extensive development this year is in progress on the Troy, Reserve and Gulch lodes, and the property is assuming bonanza proportions.

East, west and south of the Troy group lie the Paramount, Etta, Tidal Wave, Severance and Peculiar Nos. 1 and 2, which are looking fine in

free gold, galena and sulphurets.

The Sagamore, Seneca and Yonkers lodes are owned by J. H. Wolcott, and Wolcott and Kinney are operating the Nominee and Doctor lodes.

The Widow is rich, and charming Charles

Sandquist and Herman Bress.

Northeast of Clifton the Wilson Brothers are mining very rich earth, and southeast of them is

the famous Coleman and Henry group.

Spring Creek district, which lies at the head of Deep Creek valley, is keeping pace with the great sisterhood, and the Cane Springs Company at Clifton completes a golden chain of fourteen districts that will show bountiful prosperity within a short time.

DUGWAY DISTRICT.

Forty miles west of Johnston's Pass, in Skull Valley, is the Dugway district, in the north end of the Dugway range. There are many claims, but the principal mine is the Silver King. The ore carries 30 per cent lead and 10 ounces in silver. The Yellow Jacket and Harrison have large quantities of low grade lead ore, with an oxide of iron

gangue and 10 ounces in silver. The Buck Horn produced \$20,000 and pinched out, but the vein will be found lower down. The Cannon mine has produced considerable lead ore.

DETROIT DISTRICT.

The Detroit District is in the south end of the Dugway range. The ores are gold, copper, lead and iron. The Howard mines are old producers of copper, but the smelter has been shut down on account of cost of hauling fuel. The Ibex is a gold property that is being extensively worked. There is plenty of iron and copper ores shown in ten claims in the camp. A very fine strike is recently reported in the Ibex.

AURUM DISTRICT.

On the east slope of the Schell Creek mountains, on the west side of Spring Valley is located what is erroneously called the Aurum District, one of the oldest in the state, the first locations dating back in the sixties. The ore is silicious silver in limestone, and averages about twenty-five ounces. The principal mines are the Sadie L, North Sadie L, Buckhorn, Blue Bell, Copper Glance, Silver Bell, Davis, Copperopolis, and Silver Glance. The output has been about \$150,000. Just north and over the ridge is the Centerville district, which has like ore and has produced considerable. Railroad facilities are needed to properly develop this region. The Lucky Deposit mine is the best property in the district. It has five hundred feet of shafts and tunnels, and one thousand tons of ore is

exposed. The Ruby Hall group is three miles away, with veins ranging from four to fifty feet of quartz in silicious limestone that carry an average of fifty ounces in silver. The shaft on the Grizzly is down 500 feet.

WHITE CLOUD DISTRICT.

On the north end of Mount Moriah, ten miles east of Muncy, is the White Cloud district. The ores are gold and lead in immense quantities and free milling. The veins are from three to twenty feet thick. With railroad facilities, soon to be afforded, a big output will result.

GLENCOE DISTRICT.

North of White Cloud is the Glencoe district, in a spur of the Deep Creek Mountains, sometimes called the Glencoe Mountains. The ores are mostly silicious in granite, the veins ranging from three to thirteen feet wide, and some of them have been developed to one hundred feet in depth. The Mother Lode lies four miles east, with several other claims. The ore throughout the district will average about forty ounces in silver to the ton.

THE SCHELLBOURNE DISTRICT.

In the same range as Aurum is the Schellbourne camp, at the old overland stage station. The ore found is all silicious, carrying silver and a little gold in dolomite. The El Capitan is the principal mine, with a shaft 100 feet and several tunnels. About \$100,000 has been spent in development. The other mines are the Woodstock, Union, Golden

Garter, Burke, Martin and Lovell. There is a 10-stamp mill in the camp, but a railroad is needed to haul fuel in and the ores out.

MUNCY DISTRICT.

Ten miles south of Aurum in the Spring Valley is the Muncy region of copper, lead, silver and iron ores. The Cameron, Keystone and Kansas claims are the principal ones, with about 1000 tons of copper and silver ore on the dumps. The Grand Deposit and other contiguous claims are quite equally good, but all need railroad facilities for operation. The mineral zone here is quite as extensive as that at Bingham, and of a higher grade of ore. Muncy is the natural center of the region, with plenty of water, salt and timber for all purposes of mining and milling.

PIERPONT DISTRICT.

Eight miles south of Muncy, at the edge of the valley and the mouth of the Pierpont Creek, is the Pierpont district, and the principal mine and mill bear that name. The vein is form twenty to thirty feet wide, of low silver ore which has produced hundreds of thousands of dollars, but is now idle on account of being unprofitable without railroad facilities. The Osceola district is 40 miles south of Aurum, at the lower end of Spring Valley, on Mount Wheeler. It is a placer gold camp that is in successful operation, but ledges have been found that will attract great attention.

West of the head of Spring Valley are the old

camps of Taylor, Ely and Ward. Ely is an old

producer of gold.

Duck Creek lies directly west of Muncy, in a branch of Steptoe Valley, and the country is rich in lead and a low grade of silver ore.

KINSLEY DISTRICT.

There are about fifty good claims in the Kinsley district, which is west of Devine's in Deep Creek, on the west side of Antelope Valley. The mineralization is about as it is at Furber—iron, lead, silver and copper. The Star mine is the most largely developed. It has a shaft 200 feet deep, and has taken about 300 tons of ore from the workings, which are now on the dumps.

DOLLY VARDEN DISTRICT.

Copper ores predominate in the Dolly Varden district, fifteen miles north of Kinsley. The lack of fluxing ores has long since shut down the local smelter. The country is pockety, and the ores are in chimneys. For three miles square the district is stacked with claims, with ore on most of the dumps, but that old story of "a railroad needed" makes it a tenantless area.

SPRUCEMONT DISTRICT.

Ten miles northwest of Dolly Varden and only a few miles from Kinsley is the Sprucemont district, which is already a rival of Muncy and Gold Hill. Considerable work has been done on the numerous claims in the district. The Spence, Lotham and Juniper are the principal producing

mines. The ore is silver, lead and copper. In the town of Sprucement is a thirty-ton smelter, but forty miles of a wagon haul to rail has put a quietus on the camp.

CHERRY CREEK DISTRICT.

West of Schellbourne, on the west side of Steptoe Valley, lies the Cherry Creek district, which is the best developed of any west of Salt Lake City. The camp is a light of other days, for once it had a population of several thousand people and four mills in operation. The Star mine has 10,000 feet of development workings, with an 800 foot shaft to the water level, above which it has produced almost \$2,000,000. It has ten thousand tons of low grade ore on the dumps. It is ninety miles from a railroad, and hence, now, quiet. The Pacific, Exchange and Teacup mines have been great producers, and only need a railroad to continue prosperous. Eight miles north of Cherry Creek is an extensive mineral zone that needs only the encouragement of railroad transportation to become alive with great activity.

MINOR DISTRICTS.

The Grantsville Mining district lies six miles from the town in the heart of the range. The chief mine is the Third Term, a low grade lead-silver proposition that has been worked quite extensively and will resume when the white metal again obtains proper recognition.

The Lakeside district lies northwest of Grantsville in the low range skirting the lake. The ore averages from 40 to 60 per cent lead, and carries some silver. With railroad facilities the camp would be prosperous.

Iohnston's Pass district lies on the west side of the Oquirrh range, just beyond Skull Valley. The ores thus far discovered resemble those at Mercur. The district is new, with but little development.

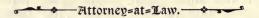
Death Canyon district is an old one and has produced considerable ore. It lies ten miles south of Johnston's Pass, in the West Tintic range. ore averages from 40 to 60 per cent lead, and from 10 to 60 ounces in silver. The district would be a heavy producer with railroad facilities.

Twenty miles west of Death Canyon is the Omega district, in which is the Rockwell mine, which has a four-foot vein of galena, carrying 40 per cent lead and a few ounces in silver. This is the only shipping mine in the district. The Wild Horse district lies five miles further west, and is undeveloped.

The Granite Mountain district lies just north of Dugway. The development shows the ore to be

high in lead and low in silver.

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The Cyanide Process.

While not yet accepted as absolutely perfect, potassic cyanide thus far is the most successful treatment for the gold ores of the Camp Floyd district, which are of quite uniform quality, but carry gold in such a fine and divided state that milling is otherwise out of the question. The ore being dry and easy to mine and crush, it speedily yields its values to percolation leaching. The process consists of reduction, leaching, precipitation and refining. First the ore is passed through the rockbreakers and crushing rolls, and is classified by revolving screens to a quarter-inch size (these being the coarsest mesh screens or sieves), when it is ready for the leaching tanks. The ore that was not crushed sufficiently fine is again put through the crushing machinery. The leaching tanks are open, circular, from ten to twenty feet in diameter, and from three to five feet deep, made of plate steel. The ore is placed in the tanks and the cyanide solution is pumped in at the bottom, and is also drawn off at the bottom. The strength of the solution is about one-half of 1 per cent cyanide. It takes about 400 pounds of this solution to leach a ton of ore, or, in other words, it requires 48 gallons of water to which has been added from one to two pounds of potassic cyanide for each ton of ore to be leached, which takes from 12 to 24 hours, when it is drawn off to go through the third operation.

As a variable quantity of potassium cyanide remains with the ore, the ore is washed to recover it. After dumping the leached ore, the process is

repeated.

The third process consists of zinc precipitation. A metallurgical filter or zinc box does the work. The box is from 18 to 24 inches long, of wood or iron, 16 to 24 inches wide, and from 12 to 20 inches deep, with small partitions about 12 inches apart, placed cross-wise of the box, and so arranged as to throw the gold-charged solution alternately from top to bottom. In the bottom of the box there should be a screen or sieve from two to four inches up from the bottom, upon which zinc shavings are placed which precipitates the gold through the sieve to the bottom in small particles. The refining of this precipitate constitutes the fourth and last stage of the process.

Zinc shavings are made one three-hundredths of an inch in thickness by a lathe, in order to get the greatest possible zinc surface in a given area. It takes one-half-pound of zinc for each ounce of

gold bullion obtained.

Great care is taken in collecting the gold precipitate from the bottom of the tank to prevent loss. Refining is done by calcination, or roasting and acid treatment. By roasting the slimes are dried in a muffle furnace and then submitted to sulphuric acid treatment, after which it is washed, dried and roasted. The separation of the acid solution from the bullion is best performed by decantation [to pour out], and a filter press, as it is desirable to free the bullion from other base metals before melting. [Be careful of a draught in the last drying and roasting in the muffle furnace, as the loss of fine precipitate will be great.] Now cool the grayish-brown bullion of lumps and dust in a

wrought-iron box, then pulverize and mix with the borax and soda in such proportion as experience dictates to secure a clear, light slag in melting. As the mixture comes from the cylinder it is charged into a clay pot and melted into clear gold bullion, 990 fine, and is cast into bars a refined product.

Potassic cyanide is a foreign product, costing 50 cents a pound, and is one of the most valuable

additions ever made to metallurgy.

That phase of the treatment for arsenical ores is given under another head on the same subject.

This process, with some variations, can be successfully and economically used for the treatment of silver ores, the utility of which scientific experiment will quickly solve. Where ores contain an acidulous compound, in most cases lime or soda will prepare the ore for successful percolation treatment.

A Utah Cife Insurance Company.

Hundreds of thousands of dollars are annually paid by Utahnians to eastern companies for life insurance. This vast sum is hoarded by eastern cor-

porations.

The patriotic plan of patronizing home institutions in the Life Insurance line may now be taken advantage of by those interested, as the INTER-MOUNTAIN LIFE INSURANCE COMPANY of Salt Lake City is in the field, and is meeting with success commensurate with its aims and purposes. It is on

a solid básis, and is as proportionately responsible for all it contracts as any life company. It is the pioneer organization that has its home office in the

vast Inter-mountain country.

The death rate of companies having the bulk of their business in the east and south, and the interest rates on equal security in this country, is an object lesson which shows plainly that the people of this healthy Inter-mountain region pay to eastern companies twice the amount that would give them equal protection and security in a home company. The plan of this company is unequalled in the United States. A distinct fund is provided by the management which guarantees the full payment of all policy contracts. This in an entirely new feature in the business.

The company issues policies of such forms as will meet the wants of all classes of insurable ages and occupations, and combines investment and life insurance in the best way, as proven by the experience of the past.

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of payments after three years.

Third. Cash surrender value after seven years and at the end of each five-year period thereafter.

Fourth. Surplus added to face of policy when

it becomes a claim.

Fifth. One-half of policy paid in case of permanent total disability caused by accident or

disease, the remaining one-half continuing in force till death or surrender.

The following are the officers of the company: Dr. A. S. Bower, president; Hon. Wm. H. Rowe, vice-president and treasurer; Seth W. Maltbie, acturay; J. B. Adair, M. D., medical director; Hon. H. J. Dininny, general attorney; Geo. E. Blair, secretary; J. W. Kyle, superintenent of agencies.

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Meaning of Free and Unlimited Coinage.

The free coinage of silver means that the owner of silver of legal refinement shall be permitted to take his silver to the government mints and have it coined into standard money free of cost to him. It means that silver shall be accorded the same legal right as is given to gold. Hence free coinage of silver is opposed to a seignorage, or a charge.

The unlimited coinage of silver means that no restrictions shall be placed upon the amount of silver that may be coined; therefore it means that the full offered product of both gold and silver shall be coined without cost to the owner. Under the operations of the silver purchasing clause of the Sherman Act the Government was limited to the amount that should be coined; hence limited coinage and the present demand for unlimited. Under the same act the Government purchased silver as a commodity, paying the lowest price for it, yet turning it into dollars, by the issue of silver certificates, of a limited legal value of 100 cents. The difference between the purchase price of silver and the 100 cents at which the coined product, or the certificate, was issued was the profit to the government, and was therefore a charge on the coinage of silver which has not been and is not imposed upon gold, as above explained.

Therefore, the expression, "Free and unlimited coinage of silver," means that there shall be no limit to the amount to be coined, as in the case of gold, nor shall a profit be made upon the coinage of silver which is not exacted for the coinage of gold.



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A Nineteenth Century Wonder.

Any scheme that will make humanity better must be accepted as a good thing by all. This is admitted to be a fact wherever civilization has any foothold in the world. Rational or irrational fanaticism, persuasion, unusual excitement or any guise of plain or occult phenomena that will transform a wrong into a right, or change a disgrace into a thing of honor, has certainly done well in the light of civilization. The disease of alcoholism has prevailed as long as history makes notation of time and events. It has done more to outrage and curse humanity than all the plagues and famines of time. Of the degredation of inebriety no dissertation is needed here, but the cure for the same is a story far greater in its scope and wonderful realities than a dozen books of the size of this one could hold. The pathological foundations upon which the Keeley cure is built are as solid and permanent as the Rock of Ages, and looked upon from a purely scientific standpoint it is the most glorious achievement of human development.

The results of the cure upon hundreds of thousands of patients, and its adoption by the governments of nearly all civilized nations, places it beyond the cavil of skeptics of the world. Every downfallen and besotted individual may be reclaimed to honorable and useful manhood by the Keeley treatment, and it is because the writer knows so many miners, and those interested in allied pursuits, who have reached that pale where only this remedy can

save them, that this article is written, unsolicited by the management of the Keeley Institute in Salt Lake City.

West Mountain Mining District.

The West Mountain Mining District, which is more familiarly known as Bingham, is justly named the "Old Reliable" mining camp of Utah. For over thirty years rich ore has been extracted and millions of wealth has been returned to the operators. In all these years no boom has ever cursed and injured that camp. Careful and conservative management has always characterized and has been the distinctively healthy feature of the conduct of the properties of Bingham. The district comprises a remarkable ore zone, scarce equalled by any other like area in the world. In mountain and gulch alike are found the exhaustless deposits of paying ores, as has been demonstrated by the Old Jordan and other long-tried properties.

A majority of the properties in the district were patented in the '70's, and have, in the main, been idle since that time. While all are mineral-producing and in most instances have made valuable outputs, they were abandoned for lack of capital to operate beyond the most primitive methods of extraction. Thus it is a fact that Bingham has fully one hundred and fifty idle mines, not prospects, that could be made good paying producers by the expenditure of sufficient capital to equip them with

machinery to properly develop. As it is now most of these properties are owned by poor men, whose labor wage is their sole dependence, and who can neither afford to hire nor extract enough ore individually to make small operations pay. For this reason no camp in the state has so much in sight for the conservative investor. There are hundreds of chances to return a larger income for the capital invested than can be found in any other industry. When these idle properties were operated the transportation and smelter charges were sixty per cent higher than at the present, yet they were operated at a profit. Recent scientific and economic methods have made the treatment of low-grade gold ores profitable, and in this particular camp it has been shown that the low-grade ores easily pay for the treatment of richer grades, as well as all operating expenses. But the enforced reduction in the price of lead an l of silver by combines on the one hand and legislation on the other has compelled the closing down of many properties that otherwise would give honest and direct employment to thousands.

The mining operations at Bingham have always been conducted so quietly that little is heard of the great and one of the most promising camps in this state. Outside of Utah it is scarcely known except possibly among the older mining men of the country. But it has produced millions of money for those who have systematically operated its mines. It is a "poor man's camp" only in so famas cheap operation is concerned, but it takes capital to purchase power, machinery, and pumps to operate, and this seems one of the things needed to make many of the

properties in the West Mountain Mining District profitable producers. The chances for successful investment are fully as great as in any mining camp in the country. No vein has ever been known to "peter out."

CHARACTER OF VEINS.

The mineralization of the West Mountain District is, first, of veins lying conformably to the strata, and, second, the true fissures that cut the strata at different angles. The main mineralization is 1500 feet wide and four miles long, consisting of two beds of dolomitic limestone, one 150 and the other 100 feet thick, both heavy in mineral. Above and below these belts are narrower beds of calcareous shale and limestone, some of which carry rich mineral. Thus far the depth of mineralization as shown from the discovery point of the Old Telegraph mine down to and below the 1500 of the Brooklyn, is a distance of over 2500 feet of continuous vein of marketable ore of even quality. As far as science and geology have established a fact it is reasonable to suppose that the ore will be found to as great a depth as operation is possible, and as depth is reached more copper is found.

THE COPPER BELT.

Experts claim that the development of the Copper Belt in Bingham will disclose as great deposits as found in the Anaconda, at Butte, Montana. Once the development reaches below the drainage point this new and great industry in the camp will have been established. The Bingham

Copper Company are developing the Starlus, the northern limit of the copper belt, which has a shown width of 2000 feet, carrying 8½ per cent copper with gold and silver. The copper is in the form of sulphides and sulphates, which can by concentration and leaching be treated at a cost of only one dollar per ton of crude ore. The Crown Point has output hundreds of tons of ore that carried from 12 to 20 per cent of copper, taken from below the water level, and as depth is reached the ore becomes richer in copper. Other mines are having the same results in the development of copper ore bodies.

BINGHAM'S PLACERS.

In 1864 Peter Clays crossed the plains and located in Bingham Canyon. He built the first log cabin and was first to make a success of placer mining in the district, having up to 1867 taken \$30,000 from the ground at the confluence of Carr Fork. Other miners along the canyon extracted possibly one million in dust, with but little water, and never having reached bedrock. Even up to the present but little dirt washing is being done but to prospect, most attention being given to lode mining, owing to the fact that placer is less profitable than lode mining. In the Butter shaft bedrock was found at a depth of 140 feet, and from six pannings made from 50 cents to \$1.50 were found to the pan, but the flow of water is so great at this depth that work is impracticable at the present. However, the future of placer mining is full of great promise. There are yet fourteen miles of the Bingham channel that have never been worked for placers, and con-

servative men of wide experience in the district claim that the ground will produce \$2,000,000 net to the mile. Up to date Bingham has produced about 115,000 ounces of gold, but the industry has not even started as yet. When the subterranean flow of water is once regulated the main channel and its latterals, banks and bars down to bedrock, will give up fabulous wealth.

Bingham Gunnel Company.

One of the most notable undertakings in the West Mountain Mining District, and in fact in the West, is the projected work of the Bingham Tunnel Company, a Salt Lake corporation. It proposes to drive a tunnel under the greatest mines in the district—a tunnel which will be 500 feet beneath the lowest present workings of the famous Dalton and Lark group of mines. It is to be at least three miles long, seven feet wide, and eight feet high, with a drain 2x3 feet running under the tunnel proper the whole length. When constructed it will drain the whole of the region now embraced in the Dalton and Lark, Brooklyn, Miner's Dream, Old Telegraph, Wasatch (now controlled by the Winnamuck), Yosemite No 1 (bonded to the Golden Opportunity), Yosemite No. 2, Antelope; Lead Mine, Richmond, Badger, Chicago, Keystone, Hamlin, Rough and Ready, Old Jordan, Galena, and Reindeer, and other groups. region has a wonderful record for the production of lead, its yield being about 90 per cent, of the

whole Bingham product, which is equal to something like 40 per cent. of the total product of Utah lead or 10 per cent of the total lead product of the region west of the Missouri River. At this writing operations are largely suspended owing to the presence of water, the low price of silver, and the cost of work. When the plan of the Bingham Tunnel Company is completed, however, all this great lead ore belt will be substantially dry, and the saving-because it will then no longer be necessary to lift the water-will enable a resumption of work on the properties now closed and will also make possible a greater develpment of those properties still producing. This tunnel will also enable the ores from this area to be brought to the surface without hoisting, and will also permit the development of the properties to a depth that might not be thought of but for this undertaking. The water drained from the extent of territory to be covered by the tunnel will be utilized in generating electricity with which to light the tunnel and the mines and to furnish power for driving the drills-which is all the artificial power that will then be needed, since the completion of the tunnel will render unnecessary any power to lift the water or to hoist the ores. A tunnel seven feet wide will permit the use of a single track with large cars, while additional width will be given at points for the switching and passing of cars. All that will need to be done will be to let the ore drop to the tunnel, whence it will be taken to the surface almost by gravity.

The work involves an expenditure of something

like \$400,000, and has already been prosecuted close on 600 feet.

It is a great undertaking, and means more for that region than most people can conceive. Besides, the water will be used to irrigate the rich acres of barren lands lying above the canals and beneath the lower hills of the Oquirrh range, and to this use it will be put after it has accomplished its primary mission, that of furnishing power for the running of drills, furnishing light, and perhaps concentrating ores carrying too low a percentage of minerals to justify the shipment by rail in the state in which they are extracted.

The Dalton and Lark Mines.

In 1890 Messrs. J. Schenck and H. H. Rea purchased what are now the noted Dalton and Lark mines, in the West Mountain, or Bingham, Mining District. During that year and into part of 1891 work was steadily prosecuted. Then it was suspended only to be resumed in October of 1892. From that time the Dalton and Lark have been steady producers, and have yet to fail paying a dividend each month—first to the syndicate controlling them, and later to the corporation to which the title was transferred. The Dalton and Lark Gold, Silver and Lead Mining and Milling Company was organized February 24, 1896, with a capital of \$2,500,000, and on the first day of March following declared a dividend and has repeated the



pleasing performance each month since. Subsequently the company purchased the claims, improvements, tramway and mill of the owners of the Brooklyn group of claims, by this means at once reaching the position of one of the most conspicuous mining institutions in the West. The tramway is some seven miles long, running from company's mines to the Rio Grande Western Railway in Bingham Canyon proper, at which point also its chief mill is situated. [This mill was burned to the ground July 24, 1896, but was fully insured.] The Dalton and Lark owns four groups of claimsall patented-in all some twenty-eight claims known to be on the great mineral belt of this wonderful district. Thousands of feet of workings have opened vast ore bodies, so that the permanence of the production of the mines has passed beyond any question. This group is also sharing the same satisfactory condition as so many other of the deeper workings have recently betrayed-the ore is getting richer as the depth is getting greater. When the Bingham Tunnel Company, elsewhere described, shall have prosecuted its work until it is beneath this group there will be a very great saving, since all water will be drained and the ores can be brought to the surface almost by gravity.

Referring to the tramway, it should be stated that the ore is hauled by gravity to the railroad, while the empty cars and supplies are taken back by horses. The Dalton and Lark is one of the most promising corporations in Utah today.

The Bingham Copper Company.

The Bingham Copper Company has two of the most valuable groups of mines in the West Mountain Mining district. Of the two (one a copper and the other a gold-lead-silver proposition), it is difficult to say which is the greater if either might be given distinction over the other. There is every reason to believe that the copper group will estab-lish the correctness of a long-time theory that Utah has just as great deposits of the red metal as have ever been developed in the world. On the Starlus mine, of this company, the most flattering developments have been made, establishing beyond the peradventure of doubt the great values of copper previously estimated by Mr. Orlando B. Hardy, the founder of the company. Mr. Hardy is a gen-tleman of wide and varied mining experience. He was born in Ohio, forty-eight years ago, and has spent the past nineteen years on the Pacific coast. The most eventful part of his career has been spent in the upbuilding of California, Nevada, Washington, Montana, Idaho and Utah mining interests, and his name is quite as familiar in mining circles as that of any man identified in Inter-mountain industries. He came to Utah a year ago last June, and founded the company at Bingham not only on the faith that the character of the country imbued him with, but put up a fortune made out of the powder business in California, as a guarantee that the propositions that he promoted and fostered were worthy of great confidence. The officers of the Bingham Copper Company are: W. E. Germaine,



MR. ORLANDO B. HARDY OF THE BINGHAM COPPER COMPANY.

president and assistant manager; O. B. Hardy, vice-president and general manager; A. B. Miller, secretary and treasurer; and W. A. Byers, attorney; all are directors and principal owners, Mr. Hardy controlling a majority of the shares for which the company is now capitalized. The company was first incorporated with 200,000 shares at a par value of \$5 each. Owing to the recent rich strikes made in the shaft now sinking below water level, and the great amount of capital needed to properly continue development, the company, on the 29th day of August, 1896, held a meeting and decided to increase the number of shares to 1,000,000 of a par value of \$1 per share and place the stock upon the public market, with 100,000 shares of treasury stock in reserve, at a figure to be decided by the course of events.

On the Starlus a shaft is now down one hundred feet, and the copper values in this distance have increased just double. On this claim a tunnel has been driven in on the vein 950 feet, from which point a winz has been sunk 100 feet, showing steadily increasing values with the increase in depth. The ore is clean and filled with from 16 to 18 per cent copper and carries from \$15 to \$20 in gold. This particular vein parallels the great ore zone in the Amanda claim of the same group, which is of lower grade, but only three hundred feet away. A tunnel has been driven on this vein 550 feet cutting the pay chute 260 feet from the surface. At this point the vein is 14 feet thick, the ore averaging $8\frac{1}{2}$ per cent copper, \$5 to \$8 in gold, and from 7 to 15 oz. in silver, making the

average value of the ore about \$23. The shaft on the Starlus will be continued another one hundred feet, which will put it below the water level, or in the richer copper zone, as known to all practical mining men in the world. Without the least doubt this will put the Starlus down into mineral worth at least 30 per cent in copper, and naturally carrying a greater per centage of gold. The present value of the ore shipped from the Starlus averages from \$40 to \$50 to the ton. The copper is worth about \$17.60, with about the same value in gold, and the balance, carrying five to ten ounces in silver, will easily indicate the character of the ore, which happily has a home market at the Germania smelter. One hundred tons have just been shipped, for which returns in cash were made as above stated, and there are at this writing fifty tons more of the same ore in the bins. There are ten claims in the group, consisting of the Starlus, Horseshoe, Lucy Q., St. Patrick, Mabel C., Amanda, Remnant, Copper Queen, Sarsfield and Keystone, in all compris ing 121.68 acres.

The Bingham Copper Company also own the Benton-Nast group, or what is more familiarly known now as the Benton group of eight claims. The property carries gold, silver, and also lead. This group has already yielded over \$300,000. There is one tunnel in 1,900 and one in 1,600 feet long. It lies about a mile and a quarter from the copper group of claims, and the production is about ten tons of \$30 ore per day. There is from \$7 to \$9 in gold, from 15 to 30 ounces in silver, and from 30 to 50 per cent. in lead. The company intends

to temporarily cease operations in the upper workings and run a 1000-foot tunnel to cut all the veins at a point at least 400 feet below the present workings. With this tunnel completed it will be an easy matter to make the output at least one hundred tons a day. The ore is clean and will need no mill treatment, but can go direct to the smelter.

Some of Bingham's Mines.

ABE LINCOLN GROUP.—The Abe Lincoln Gold and Silver Mining Company own the Abe Lincoln, Yucan, Wanty, Wanty No. 1, Cactus, Henley and Ruth. The property lies northwest of and adjoins the Dalton and Lark group; development 1000 foot tunnel from Pine Gulch to tap the Mayflower.

ALL'S WELL.—Has 400 feet of tunnel and incline development in Bingham Canyon, on four-foot vein of good grade of ore of gold, silver and lead, and carries 10 per cent copper. Located in 1891, and now needs capital for development.

Agnes and Dana.-In Carr Fork; old location; silver and lead ore and has produced 500 tons from shaft 250 feet deep; abandoned on account of water

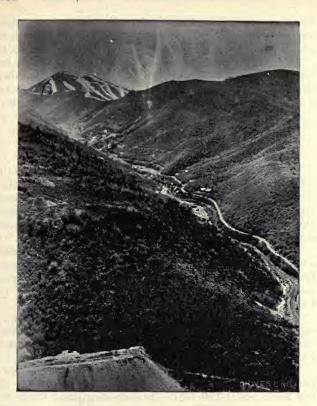
and no capital.

ANTELOPE.—In Copper Gulch; gold, silver, lead and iron, valued from \$30 to \$40; incline of

650 feet; drift 150 feet. Steady shipper.

AMAZON.—In Markham Gulch; located in 1882; gold, silver and lead; two tunnels 300 and 600 feet; produces an average of 50 tons of high grade ore.

ALFARATA.—In Markham Gulch; located in



UPPER BINGHAM CANYON.

1890; gold, silver, lead and iron; has incline and 700 feet of tunnels; ore averages from \$7 to \$80 per ton.

Arropean Group.—In Cottonwood gulch; located 1873; gold, silver and lead; 1500 feet of cross-cuts and drifts; value of ore, \$60.

BADGER.—In Brooklyn gulch; located 1874; gold, silver and lead; extensive development; deepest shaft 400 feet; ore averages \$80 per ton.

BUTTERFIELD MINING COMPANY.—In Butterfield Canyon; group consisting of the Queen, Bemis, Hyatt, French Spy, Eagle Bird, Old Times, and Northern Chief; gold, silver and lead; extensive development and one of the greatest and richest properties in the district.

BURNING Moscow.—In Muddy Gulch; old

location; gold, silver and lead carbonates.

CHICAGO.—In Brooklyn gulch; old location;

gold, silver and lead; small development.

CLYDE.—In Markham gulch; located 1882; gold and silver in white iron; good grade of ore;

small development.

CLYDE No. 2.—Between Oregon gulch and Carr Fork; located 1882; gold, silver and lead in good paying ore, and extensive development is in progress.

CLYDE No. 3.—In Markham gulch; located

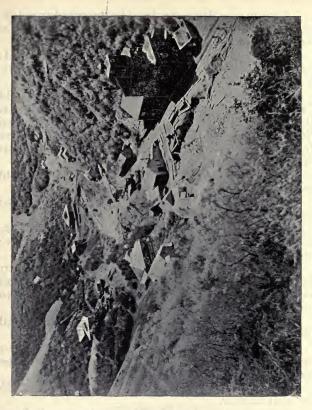
1884; ore averages \$10 by cyanide process.

CUBA.—In Carr Fork; old location; gold, silver and copper; on same vein as Crown Point, and the ore averages 14 per cent copper.

Congor.—In Pine gulch; gold silver and 25

per cent copper.

Dalton and Lark.—The Dalton and Lark Mining and Milling Company own the largest group of mines in the West Mountain district—



thirty-one claims in all, of which thirteen are producers. The Lead Mine and Brooklyn are famous for their output for over twenty years. The

Brooklyn has the deepest shaft in the district, 1,500 feet, and there are 2,500 feet of levels. The Lead Mine shaft is 1000 feet deep and contains extensive levels. The Dalton and Lark locations are being extensively developed from one common shaft, with about a daily average output of 150 tons of a grade of ore that permits of a monthly dividend after paying very heavy expenses. The Richmond and Keystone of this group are also being extensively developed and show up immense bodies of ore. Up to the present time the four older mines have produced between five and six millions of dollars, and they are still capable of making enormous outputs. Included in the Dalton and Lark property are two mills of 200 tons capacity, and six miles of tramway and cars. The surface improvements are extensive and substantial, and the company's interests are most ably managed with the very brightest prospects for a future of constantly increasing operation and prosperity.

EMMA COPPER.—In Bingham Canyon; 27 per

cent copper; iron and silver; a fine prospect.

EVERGREEN.—In Copper gulch; silver and gold in good quantities, but shut down since 1887 on

account of lack of capital.

FLAMBEAU.—In Markham gulch; located 1884; silver bearing galena of good grade, and a promising mine.

Green Grove.—In Cottonwood gulch; located 1872; gold, silver and lead; about 1000 feet of development on strong vein and good mineral.

GREELEY GROUP.—In Carr Fork; old locations, and producers of silver, gold and lead ore; 2000

feet of development in the Greeley, Ten-Forty and Sacred mines.

GREEK GROUP.—In Bear Gulch, located in 1873; the Athens, Idaho and Morett are producers of gold, silver and lead ore valued from \$25 to \$35 per ton; 2,000 feet of development, made mostly single handed by the eccentric owner in 20 years; immense bodies of ore exposed, but never worked for production.

GRANT GROUP.—In Markham gulch; located in 1891; gold, silver, lead and iron; 1,000 feet of development in splendid ore. The Coyote shows

2½ feet of shipping ore.

HARRISON. -- In Carr Fork; located 1890; gold, silver and iron of good paying grade, and is being

extensively developed.

JULIA S.—In Carr Fork; located 1889; gold, silver and lead, the latter running as high as 82 per cent: has 400 foot tunnel, but needs capital to develop.

JUPITER.—In Carr Fork; an old location, and producer of gold, silver and lead; now undergoing

extensive development.

JULIA DEAN.—In Markham gulch, located in 1864; gold, silver and lead ranging from \$115 to \$600 per ton and bids fair under increased development to become one of the greatest mines in the district.

LAST CHANCE GROUP.—In Muddy gulch; old locations; gold, silver, lead and iron; extensive development of tunnels and has mill; ore low grade but extensive in quantity, the Last Chance, North Chance and Hooper being large producers.

Lena.—In Muddy gulch; located 1881; gold, silver and lead averaging \$27 to ton; 500 feet of

tunnels, raises and shafts on strong vein.

Leona.—In Dixon gulch; old location and producer of gold, silver, copper and lead ores averaging \$30 from six-foot vein; developed by shaft and tunnel.

LONE TREE.—In Carr Fork; re-located 1888; gold, silver and lead in good grade of ore; has shaft and tunnel but now quiet on account of no capital for further operations.

MAYFLOWER.—In Copper gulch; located 1872; gold, silver and lead; has 800 foot shaft and considerable development, and has been and will be a

big producer of high grade ore.

MINER'S DREAM.—In Brooklyn gulch; old location, and producer of gold, silver and lead ore of good grade from 100 foot vein, which is an extension of the Brooklyn; 2,000 feet of developments.

MAY QUEEN.—In Cottonwood gulch; located in the 70's; gold silver and lead producer from strong

vein; only small development.

MINNIE.—In Carr Fork; located in the 80's; gold, silver, lead and iron; over 800 feet of shaft

and tunnel development on large body of ore.

MONTEZUMA.—In Markham gulch; located in 1887; gold, silver and lead in vast quantity; about 1000 feet of tunnels, winzes, stops, upraises, etc.;

good shipper.

NAST-BENTON GROUP.—In Muddy gulch; located in the 70's; now owned by Bingham Copper Company; gold, silver and lead in vast quantities in good pay veins; several thousand feet of develop-

ment; the group consists of the Nast, Benton, Red Cross, Gold Leaf, Smuggler, Mayberry and others;

all producers.

NIAGARA GROUP.—In Porcupine gulch; all old locations, including the Spanish, Blackhawk, Dartmouth, Canby, Red Warrior, Bonnie Blue Flag, Climax, Sturgis, Ajax, Portland, Indiana, Utah, Live Pine and Oyhee, all producers of gold, silver and lead ores of good value; Niagara tunnel now in 3,000 feet; will go 2,000 further to drain entire property; big concentrator and miles of development and output up to date far exceeds two millions of dollars; great future for this property.

NORTHERN LIGHT.—In Bingham Canyon; located in 1873; gold, silver and lead in low grade, but vast quantity of ore; vast development and 60-

ton concentrator.

OLD JORDAN AND GALENA.—In Bingham Canyon; the oldest mine in Utah—The Jordan; located in 1863 by Fort Douglas soldiers; the Galena was located six months after the Jordan; gold, silver, lead and iron; vein in Jordan 150 feet wide, and in all these years the lower level has only reached 65 feet from the surface; production of Galena and Jordan to date about \$18,000,000 from separate veins; besides these original properties the group consists of fifteen claims, several producers being on the Galena vein.

OPULENT.—In Black Jack gulch; located in the 70's; gold, silver and lead as high as \$113 to the ton from strong vein; several hundred feet of shaft and tunneling.

QLD TELEGRAPH.—In Bear gulch; one of the

oldest locations in the district, and one of the greatest producers of gold, silver, lead and iron; gross product about \$11,000,000 averages from 600 to 1000 tons per month of good ore; considered the greatest mine in district.

PARNELL.—In Carr Fork, old location and shipper; gold, silver and iron in good paying quantities in good body of ore developed by 50 foot shaft

and drifts.

PEDRO.—In Carr Fork; located 1891; gold

silver and lead in large body of ore.

PHENIX GROUP.—In Carr Fork, located 1879-1894; gold, silver and lead in vast ore body, largely developed in eight claims all worked from a common tunnel.

PRIDE OF THE VALLEY.—In Copper gulch, located in 1883; gold, silver and lead on Dalton and Lark vein; 100 foot shaft and tunnel 175 feet in good ore bodies.

ROYAL.—In Spring gulch, located 1872; gold, silver and iron averaging \$200 to the ton; long idle

and owner unknown.

RUBY-NATIVE.—In Freeman gulch, located 1886; gold, silver lead; drift, shaft and crosscut 600 feet; small pay streak has been developed.

Scottish Chief.—In Markham gulch, located 1890; gold, silver, lead and iron averaging \$70 to

ton; 300 feet of tunnels and incline.

SILVER STAR.—In Bingham Canyon; located 1895; gold, silver and lead; shaft and tunnel 240 feet; ore returns from \$25 to \$27.50 per ton, with good body of it developed; the Navajo and Monico are in group with Silver Star.

THE 1889.—In Bingham Canyon; located in 1889; gold, silver, lead and copper of good paying quality; has several thousand feet of development, showing mineral body 75 feet thick.

Thrush.—In Bingham Canyon; located in 1876; silver, gold and lead, of high grade; 400 feet of tunnels and shaft 50 feet; a valuable

property.

TURNGREN GROUP.—In Porcupine gulch; located from 1880 to 1892; gold, silver and lead of good grade of ore found in the Irish-American, Bargain, Silver Comstock, Tipperary Boy and Turngren; 2,500 feet of shafts, drifts and tunnels, all arranged to work and develop through the Irish-American tunnel.

U AND I.—In Dixon gulch; located in 1887; gold, silver, copper and lead in good quantity; 1,200 feet of development in drifts, tunnels and saiers.

UNLIMITED GROUP.—Off Porcupine gulch; located in 1875-1884; consisting of the Silver Crown and Logan; gold, silver and lead; developed by 1000 feet of tunnels.

VENUS.—In Carr Fork; old location; silver, gold and lead; considerable development, with good

prospects, as ore is above the average.

Wasatch.—In Brooklyn gulch; old location; gold, silver, lead; an old producer of good grade of ore.

WINNEMUCK GROUP.—In Bingham Canyon, consisting of eleven old locations and all old producers of gold silver and lead; old vein carries ore ranging from 105 to 1,030 ounces in silver and

from \$10 to \$20 in gold; vast development; output of the past possibly \$2,500,000.

YORK.—In Carr Fork; old location and noted property; gold, silver and lead in vast quantity

and of good values; extensive development.

YOSEMITE No. 1 GROUP.—In Broolyn gulch (also known as Yosemite gulch); located in 1865; gold, silver and lead in vast quantities in six claims now in litigation before Supreme Court, of the United States; miles of good development; past output about \$3,000,000, with future of fabulous wealth.

THE WINNAMUCK GROUP.

The Winnamuck group consists of eleven patented claims, and has been one of the heaviest producers in Bingham. It was one time the property of citizens of Amsterdam. During a period of five years they sold a gold and silver product from the claims which brought over \$1,000,000, to which sum must be added also a large amount for the lead ores extracted. All this was from ores that would stand the cost of transportation for smelting, the refractory or rebellious product being thrown over the dump. It is estimated that the property has produced between \$2,000,000 and \$2,500,000 though worked only to a depth of four hundred feet. It passed through various stages of neglect and finally of desertion. Then legal complications, because of inherited interests, interposed still more serious obstacles, and the great producer was permitted to lie idle until purchased by Captain J. F. Woodman, Colonel P. S. Sowers and John G. Logan, and the property fell into the hands of Utahnians to be worked as a straight business proposition. The vein is large and well defined, and there is no possible doubt as to the permanence of the ore bodies. Assays show ores ranging from 105 oz. to 2,220 oz. in silver and \$10 to \$20 in gold to the ton, besides a high percentage of lead, such as abounds in nearly all Bingham mines. The works have been remodeled, water for the concentration of lower grades of ore has been piped to the mills, so that there will not longer be a waste of the values in the ores.

THE MINER'S DREAM AND VANDERBILT CLAIMS.

The Miner's Dream and Vanderbilt Claims are the property of W. C. Hall, Esq., a prominent mining and real estate attorney of Salt Lake City. They are opened by tunnel, which, together with drifts and inclines, make some 2,500 feet of workings. Assays on these claims give 55 to 63 per cent lead, 5 to 20 oz. silver, and \$4 to \$6 gold to the ton. The claims are patented and adjoin the now celebrated Dalton and Lark groups. They are on the Bingham mother lode.

The Broadgauge and Boomerang are owned by the same gentleman. They are on the west side of Main Bingham Canyon, some 1,500 feet north of the Winnamuck Claims, now being operated in a thorough and extensive manner. The Broadgauge and Boomerang are being worked. A tunnel 380 feet has been driven in on the vein, with an incline 165 feet from the surface to the tunnel level. There is also a lower tunnel now in 75 feet, and still being

extended. These claims yield two grades of ore—the first assaying 175 oz. of silver and about 12 per cent lead; the second 55 oz. silver and about 55 per cent lead.

The Atlantic Mining and Milling Company own seven claims, six of which have been surveyed for patent. A tunnel has been run in on the property 1,000 feet and is still being extended under contract, with three 8-hour shifts. There is also a 200-foot shaft. Gold, silver and lead are the products of the mine, assays showing 20oz. in silver and \$22 in gold. F. A. Grant is president, secretary and manager of the mine; Charles Warren is vice-president. These two gentlemen, with C. M. Wood and H. J. Newman and J. D. Kenworthy, make the Atlantic directory.

FRISCO MINING AND MILLING COMPANY.

* The claims now owned by the Frisco Mining and Milling Company very effectively illustrate the vicissitudes of mining interests. Its claims are located in the favored district at the head of Carr Fork, Bingham Canyon, and have in years past yielded over \$300,000, and the property was so highly thought of that in 1884 it sold for \$1,500,000 and was then mortgaged for \$500,000. This involved the claims in tedious litigation, and the property was neglected and its values seemed to leak out.

Finally Mr. E. W. Genter closed up the difficulties of the old corporation and secured possession of the three claims in 1896, which now belong to the Frisco Mining and Milling Company, since which time they have worked them, paying as early as August a dividend, thus showing that a great property had been idle and sunk in value steadily without any just cause for it. The present owners have incorporated for 200,000 shares of a par value of \$1 each. Their claims run 4,500 feet along the vein. In tunnels and drfts over 4,000 feet of work has been done. There are four tunnels, the longest 800 feet. A great deal of ore has been extracted along the line of these tunnels, and now a \$3,000 plant is being put in to sink a shaft through the ore chute from the lower tunnel. The shaft will be located midway between the end and the mouth of the tunnel, and will be sunk 500 feet. It will be a double compartment shaft, and when finished will give the Frisco a working depth of 1,000 feet. The workings are all connected with each other by stopes, and returns show the ore to carry gold, silver and lead-lead 30 per cent, silver from 42 to 60 oz, and gold \$1.50 to \$4 per ton. There is little question that the Frisco has a most valuable property, which even at present prices in silver and lead, will pay for working and will pay well. The claims are all patented, and the property is in first-class shape. E. W. Genter is president of the company; George Havercamp, secretary and treasurer; and E. L. Tarbot, a director and superintendent.

THE JULIA S.

This group embraces six claims and a fraction, and is considered a very promising property. The claims parallel and line two sides of the Frisco, (lately become a dividend payer) being located at the head of Carr Fork proper. The ground is almost

virgin, the only work done being to drive a tunnel in some 400 feet on the vein. In doing this work ore chutes or chimneys were cut into, from which assays were had showing 263 oz. in silver, 62 per cent lead, and \$10 in gold to the ton. Another the assays showed 82 lead, 450 oz. silver and \$11 in gold. Prof. Clayton, after a thorough examination of Bingham, asserted that the north end of the Bingham belt would turn out the richest ore and develop the most extensive ore bodies. His statement is being partly verified by assays from the Julia S. Two of the claims are patented. The owners of the ground are Quellin, Stephens and Cleary. A strong company will some day get hold of the ground and push the work vigorously, as its present developments would seem to justify.

THE CLEVELAND.

N. G. Jarrard, W. L. Wilt, A. J. Kellbourne and Charles Sipple own the above groups, the property being located at the mouth of Markham gulch, in Bingham, and adjoins the great Tiewaukee mines; and is only about 1,500 feet from the Julia Dean, now making shipments of such high grade ore. The property has been opened by a 600-foot tunnel, and has shipped some ore bearing silver and lead, with some gold. The ground is patented.

THE CRAMP AND YELLOW METAL.

Adjoining the Cleveland are the Charles H. Cramp and the Yellow Metal, owned by N. G. Jarrard, Charles Sipple and William Leadingham. Goodlooking surface prospects, but on which no great amount of work has been done.

THE EDA.

Is owned by N. G. Jarrard and Joseph Laucina. This claim is located about 1,000 feet northwest of the York and Petro mines in Cottonwood gulch. It is opened by a 200-foot tunnel and 150 foot incline, and is still being worked. It is a small shipper of some fine silver-lead ores, carrying also gold.

THE CROFF

Is a patented property owned by N. G. Jarrard and Fritz Miller. It is located in Cottonwood gulch, about 1,200 feet north of the Petro, Phænix, and Coromandel mines, recognized as among the most desirable properties in Bingham. About 400 feet of surface workings has been done on the claims, and has a small amount of ore in sight, while some has been shipped. The ore carries gold, silver and lead.

JULIA DEAN.

The Julia Dean is a group of claims in Bingham Canyon now making a most phenomenal showing. The great values in the ores mined and only exposed within the past few months are causing many to incline to the belief that Bingham is destined to become as ntoed for its high grade as it has long been recognized for the abundance of its low grade ores. The Julia Dean group is not a new one, and the latest developments are the return for years of hard and almost thankless work by Dan Clays—the owner.

CROWN POINT.

The Crown Point, in Carr Fork, near Main Bingham Canyon, is owned by Messrs. Blakeley, Bemis, Kloppenstien and Newell, but is under bond. It is a most promising mine. Work is now below the water level, and the product of the mine is largely copper, its ores finding a ready market. It is recognized by Bingham mining men as one of the coming great properties of the camp.

MONTEZUMA.

Mr. W. J. Strickley owns the Montezuma, a group of claims that have made a great showing in the last eight months. It is giving great encouragement to the owners of other properties in its vicinity, and it would be hard to convince Mr. Strickley that all his wants in this life would not be satisfied by the Montezuma.

NORTHERN LIGHT AND HOAGLEY GROUPS.

For the Northern Light group a mill is in operation. The mine has lately output a great deal of ore, and has much in sight developed and ready for extraction. It is a silver-lead proposition. The same company owns the Hoagley group, carrying the same metals, but the ores run much higher in silver. Mr. Geo. E. McErlaine in managing and owns a large interest in both these properties.

THE numerous gold prospects opened up in City Creek Canyon and on Black Mountain during 1896, are developing finely.

The Roberts house.

The Roberts House is a new hostlery at Bingham, and is modern in all its appointments. It was opened July 1st, 1896, and is managed by Mrs. C. H. Roberts, wife of the County Commissioner, who has lived in Bingham for the past eight years for four years of which time he was postmaster. One feature that will be appreciated by guests at the hotel is the water piped into the house as a private undertaking by Mr. Roberts, it having been piped two hundred yards for that purpose from a spring.

Reliable Information.

Parties seeking information regarding Bingham and its mines can obtain it by addressing B. B. Quinn, Bingham Canyon, Utah. He is recorder of West Mountain mining district, and perhaps more liable to be in possession of the data desired than any other individual. He will give attention to all communications addressed to him.

C. C. Dignowity.

The first published report on the Mercur mines was made by Mr. C. L. Dignowity, formerly of Texas, but for the past two years of Salt Lake City. After Mr. Wolcott, of Denver, who prospected the Mercur with a diamond drill, Mr. Dignowity was the first to utilize the drill in that district for prospect-



MR. C. L. DIGNOWITY.

ing purposes, he having now at work on the Moon-shine claim, between the Mercur Mill and Fairfield Station, a prospecting churn drill which has already gone down 200 feet. He is a man of extended and varied mining experience, ranging from Old Mexico through all the Western camps and his early detailed and elaborate report on Mercur, with diagrams showing the geological formation and making predictions as to the outcome, betrayed an insight into conditions that is being verified daily.

In prospecting with the drill between the Mercur Mill and Fairfield, and now down a depth of 200 feet, Mr. Dignowity is acting on his own investigations and is confident that satisfactory values will be obtained there. The success of these developments will open a vast field for new operations and caynide plants at a point by very many now deemed almost worthless. Representing other interests with his own, Mr. Dignowity controls the Buddee group, Mercur, Black Horse group in the Western foothills, Golden Eagle and Poverty groups between Mercur and Sunshine and adjoining the Hillside and the Burlington and Hawkeye and Moonshine. are all in Camp Floyd district. He also has interests. in the Beaver Lake District, Beaver County, and in properties some seven miles up City Creek Canyon, and is inducing a great deal of capital to this state. His opinion is that Utah is wonderfully endowed with mineral resources, the extent of which few persons at this day dream.

Silver Coinage.

According to a statement issued by the Treasury Department, there was added to the silver coinage of the world during the year 1895 \$100,069,000, which would be less than \$1.50 per capita for the United States alone. The recoinage aggregated \$13,603,200. The heaviest coinage was by Mexico, \$24,832,350, and Japan came next, with \$23,833,500; next comes China, with \$8,233,340; Spain, \$7,969,000; Great Britain, \$5,821,151; United States, \$5,698,000; Austro-Hungary, \$5,299,000; Peru, \$4,073,000; Russia, \$3,554,000; Ecuador, \$2,500,000; Germany, \$1,826,000.

The world's product of silver for the year 1895 is estimated at \$226,000,000, and it will therefore be seen that if the silver produced by the whole world should come to the United States, (which the gold adherents predict, but which is an utter impossibility), it would amount to but \$3 per capita. The amount used in the industrial arts was \$42,000,000, while \$37,500,000 was used by the East, leaving but \$146,500,000 for coinage by the other nations of the earth. In view of this statement it cannot be perceived how this country can suffer from a "deluge of silver" or be afflicted by an overabundance of money.

WEALTH OF THE WORLD.

Professor Mulhall, the English statistician, after a thorough examination of the matter, estimates the wealth of the leading civilized countries of the world as follows:

| United States | \$64,120,000,000 |
|---------------|------------------|
| Great Britain | . 47,000,000,000 |
| France | 42,990,000,000 |
| Germany | . 31,185,000,000 |
| Russia | . 25,445,000,000 |
| Austria | . 19,275,000,000 |
| Italy | . 14,815,000,000 |
| Spain | . 12,580,000,000 |
| Australia | . 6,865,000,000 |
| Belgium | . 5,035,000,000 |
| Holland | 4,900,000,000 |
| Canada | . 4,180,000,000 |
| Sweden | |
| Roumania | . 3,180,000,000 |
| Argentine | |

It will be seen that the United States is well in the lead in the matter of its aggregate wealth, having 40 per cent more than Great Britain.

That country, however, France, Australia and Holland are slightly ahead of us in per capita wealth. While Australia is the richest of all countries in the matter of wealth to population, Holland boasts of the largest and best division of its great wealth; and in no country are the people as well off as there.

In the matter of creation of new wealth, of a capacity for production, no country approaches anywhere near the United States, and Mulhall himself is surprised by the billions of dollars of products we turn out annually in farm and rural products, manufactures, etc. At its rate of increase, under normal conditions, the United States can hope,

within a very few years, to equal all Europe in wealth. It is startling and almost incomprehensible to see a country as rich as this, and capable of such development, so largely stagnant as it is at present, its production checked and its values decreasing. And the first duty of the people is to put an end to the financial conditions which have caused such injury to all our idustries.

New Fire Play and Poal Discoveries.

There have been recently discovered near Payson, Utah County, very etensive beds of fire clay. The deposit is considered a most remarkable one. The vein is twenty-five feet thick, and still widening, while tests show that crucibles made of it will stand 2,200 degrees of heat without in the slightest being phased. The best Colorado fire clay is said to yield under 1,600 degrees of heat. The material is putty like, and has to be sliced off like cheese, all other methods of getting it out so far tried proving inefficacious. It is owned by Provo and Payson parties, who are steadily at work on what they believe to be a great find. It is not over four and a half miles from the railroad.

The fire clay was discovered while prospecting for coal, the prospectors uncovering a twelve-foot vein of bituminous coal, which is also still widening, and which seems to be in place, and which is undoubtedly of a quality to give it an immediate

market value.



DR. C. W. HIGGINS.

24 Years in Salt Lake City.

Dr. C. W. Higgins,

MICROSCOPIC and ANALYTIC PHYSICIAN.

Most Successful Specialist of the Age.

Dr. Higgins, having had 27 years' experience, and being a regular specialist, is excelled by none.

Ladies who are suffering

with complaints peculiar to their sex can consult the Doctor, with an assurance of speedy relief and permanent cure, without being subjected to the embarrassing procedure of an examination, which in most cases is unnecessary.

Young men, if you are troubled with

night emissions, exhausting drains, pimples, bashfulness, aversion to society, stupidness, despondency, loss of energy, ambition and self confidence, which deprive you of your manhood and absolutely unfit you for study, business or marriage, you should take treatment from this noted specialist before it is too late.

Middle aged and old men.

there are thousands of you troubled with weak, aching backs and kidneys, frequent painful urinations and sediment in urine, impotency or weakness of sexual organs, and other unmistakeable signs of nervous debility and premature decay. Many die of this difficulty, ignorant of the cause, which is the second stage of seminal weakness. The most obstinate cases of this character treated with unfalling success.

Private

Diseases—Gleet, Gonnorrhea, Inflamations, Discharges, Strictures, Weakness of Organs, Syphilis, Hydrocele, Varicocele and kindred troubles quickly cured without pain or detention from business, and will forfeit \$500 for any case taken under his treatment which he fails to cure.

All classes of FITS CURED. TAPEWORMS REMOVED WITH

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Davis County.

While there are no developed mines in Davis County, the range bounding it on the east is being periodically prospected with a promise of results destined to be ultimately substantial. Gold, silver and lead assays—gold and silver especially—have been obtained from claims east of Farmington and Bountiful, and near the line dividing Davis from Morgan County, ores of the same character as those shown by assay to exist in the Hardscrabble section of the last named county—gold, silver, nickel, cobalt, etc.—have been found. Work in a desultory way has been done. No developments giving reliable data on which to base opinon have yet been made.

The Roberts House,

Bingham.

OPENED JULY 1, 1896.

First Glass Accommodation,



In the Heart of the Great Camp.

Washington County.

Washington County, Utah, the extreme southern developed territory of the State, now lies dormant awaiting the advent of a railroad to get her vast ore deposits to market. Almost every product known to minerology has been found. The county records show that quite five hundred locations have been recorded. There are millions in the ores lying in the white sandstone of the Silver Reef in the Harrisburg district, and such noted valuable mines as the Old Buckeye, Last Chance, Thompson, Barbee, and Walker, Tecumseh, California and others equally as good, are mostly idle on account of no transportation facilities.

The Bull Valley district contains vast bodies of low-grade ore—gold, silver, lead, iron and copper—and would be one of the very largest mining districts in the west had it railroad facilities.

Tutsegavit district lies eighteen miles from St. George, and is largely prospected. Two of the best properties, The Apex and Morning Star, of a group of twelve operated by the Dixie Mining and Smelting Company, has 200,000 tons of ore in sight that will easily average \$10 net according to an expert report.

A mile west of the Dixie group, on the same chain, is the Mammoth, the Mountain Chief, and Black Warrior, all rich in silver and carbonate of lead.

The Grant Gulch Company have ceased operations in the Bentley district, forty-five miles from

St. George. It is an immense copper proposition, but the haul by wagon is too great for successful and profitable working. The outcropping, which has proven a 300 ton test of 90 per cent. copper, is 100 feet by 639 in area. A shaft 100 feet deep showed copper all the way that ran 45 per cent, and carried 25 ounces in silver. There is plenty of this kind and grade of ore all through this district that would pay to haul fifty miles to market, but not several hundred as is now necessary.

Within from ten to twenty miles from St. George there are some of the largest gypsum deposits known, extending for miles and as wide as fifty feet, solid and clear, and can be used for

alabaster.

Twenty miles from St. George is an iron ledge twenty feet thick that is miles upon miles in extent. Near by are antimony ledges of immense quantity

and of excellent quality.

When it is understood that Milford, the nearest railroad station to St. George, is 115 miles distant, the enormous freight charges on ore by wagon haul will be readily understood. However, the Dixie Company have shipped almost 2,000,000 pounds of copper bullion, matte and ore via Milford, which was treated with coke from Crested Butte, Colorado, and made a profit.

As now in progress it is but reasonable to presume that a railroad will be built through this

district within a year.

Sanpete County.

All the ranges in this county are known to contain minerals; indeed, they have been coal producers for many years, for some time before the mining for other mineral resources obtained a practical footing in Utah. But it has gradually become a realization that the county is not confined to this article, nor yet to grain growing or stock raising (in either of which it is quite prolific) for its wealth. Prospecting in a desultory way has been going on for a long time, and many locations have been made. Although the record of shipments is not voluminous, it is still a fact that there are good properties there, especially in the West Mountains, where considerable work has been done in places. In these is situated the only incorporated mine in the county, with the possible exception of some few coal mines. This is the Alexander, lying directly west of Ephraim and about seven miles therefrom. On this a shaft has been sunk eighty feet and a tunnel driven in one hundred and ten feet, this being now about thirty feet from the ore body. The country formation abounds in boulders and stringers, some of which have assayed remarkably high, one sample showing 913 ounces silver and a trace of gold. It is principally silver and lead, however. Gold and other rich float can be found almost anywhere, and with intelligent and capitalized prospecting could in many cases be traced to its native bed.

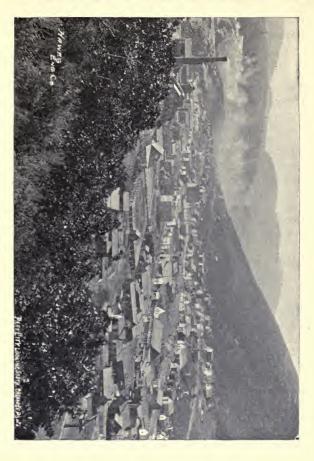
Summit County—Park City Mining District

Park City is one of the largest and one of the richest mining districts in the State of Utah. The city of Park City has 6,500 population, and is in every way a modern small city, the commerce of which is kept even, energetic and prosperous by a

pay roll amounting to about \$175,000 per month.

The Ontario mine, the largest in the district,
was discovered in 1872, and after being unskillfully worked, was about to be abandoned when Patrick Kerwin and R. C. Chambers proceeded with systematic development and made its wondrous values known. It then passed into the hands of Hearst and Haggin, of California, and Senator Chambers of Utah. The most modern and improved mine and mill machinery is employed throughout, and there are miles upon miles of tunnels, and drifts, and cross-cuts, exploration shafts down 1,500 feet, and a huge drain tunnel three miles long that cost a fortune to drive through the mountain. The history of this property has been one of phenomenal progress, owing to the thorough understanding the management has of the ore deposits, the veins and the systematic way of working them.

The Daly, which is one of the group owned and operated by the Daly Company, is also a rich mine, and has paid nearly \$3,000,000 in dividends. Its systematic development was begun under the careful guidance of John J. Daly, after whom it is named. The output has reached about \$14,300,000, and the late process of treatment of



the ores makes the percentage of extraction much higher than before.

THE DALY-WEST.

The Daly-West is managed by Hon. John J. Daly of Salt Lake City, and is known to be one of the greatest mines in the big camp. It has just been equipped with a complete plant of the most modern machinery for its more successful operation, and the immediate future promises enormous returns. The most conservative experts claim for it an equal footing with the great Ontario, or the Silver King, the latter said to be of one the richest silver mines in the world. Mr. Daly began development work on it five years ago, and for the past two years it has been a paying producer. The ore bodies have been extensively exploited, opened up and proven to be of great magnitude and richness, and establishing a longevity that will outlive the owner.

MESSRS. KEITH AND KEARNS.

The Anchor, Crescent and Woodside are three famous properties operated by Hon. E. P. Ferry. The Crescent has been a great producer and has paid two handsome dividends. The Woodside has output at least six comfortable fortunes, and after a season's shut down, is now again successfully operated by Hon. Thomas Kearns. Hon. David Keith is operating the Anchor, and with the new improved machinery will make it one of the monarchs of the camp, as will also be the Alliance.

The Silver King is said to be the very richest silver mine in the world. Notwithstanding the



HON. THOMAS KEARNS, OF THE SILVER KING,

governmental action on silver, it has the proud distinction of having paid over \$637,500 in dividends in a little over four years. Hon. Thomas Kearns is superintendent and manager of this great pot of the white metal, as also the Mayflower, a twin with the Silver King.

OTHER GOOD MINES.

The Lucky Bill, Glencoe, Jupiter, Alliance, Comstock, Morgan and Creole are all good mines with splendid records. New mining plants and mills have just been constructed for all of these at an expenditure of hundreds of thousnds of dollars, and they will materially add to labor list and output in the future. The Morgan is especially producing a high grade of ore, and when its great shaft is complete it will vie with the Daly and Daly-West as a dividend payer.

IN FUTURO.

With Park City, as with all the mining camps of Utah, the past is insignificant and inconsequential compared with the future. The ore bodies at best have been but barely scratched and gophered. It is known that the rich ore bodies reach unknown depths, the deepest mining failing to find the bottom, and the ore grows constantly richer as depth is attained. New veins are being constantly discovered, and new mills for the treatment of low grade ores are being built as fast as workmen can put the structures together, which means a tidal wave of prosperity in which hundreds and thousands now idle will join, stimulating all branches of

industry, and spreading unparalleled activity throughout the entire country.

THE CREOLE.

The Creole mine lies on Treasure Hill, west of Park City, and is one of the most promising properties in the district. At the present time the vast ore bodies are being developed to start regular and extensive shipment by the time winter sets in. A shaft is down 170 feet, and 1,500 feet of drifts have been run. The company was incorporated in January, 1895, for \$150,000, shares \$10 and \$50,000 treasury stock. David Condon is president, E. W. Berry vice-president, and the balance of the directory consists of B. F. Condon, Elizabeth Condon, A. L. Thomas, and John Condon.

THE VALEO.

The Valeo Company has made one of the best strikes of the year in its property in Dutch Canyon, in the Blue Ledge district. The company was incorporated in August for \$200,000, one dollar per share, with \$50,000 treasury stock. John E. Johnson president, George Urban vice-president, John W. Geiger treasurer, and J. M. Lockhart secretary. The other directors are John Oleson, A. L. Dahlgreen, S. B. Howell, and John Paradise. The body of ore in the Valeo is large and very rich, and the property will be a valuable one. No stock is for sale at any price.

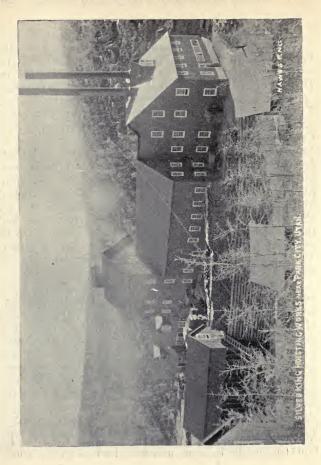


HON. DAVID KEITH OF THE SILVER KING AND ANCHOR MINES.

· THE COMSTOCK.

The Comstock Mining Company is one of the very staunchest portions of the Park City district vertebrae. To the staying qualities of Mr. Morris Dusseldorf is due the ultimate success that seems speedily to await the shareholders in this company. The four full claims comprising the Comstock ground lie contiguous to the Silver King, Apex, Crescent and Alliance, and cover an area of 400x3,000 feet. There is a 200 foot shaft and 4,000 feet of tunnels and drifts. Ten men are now employed in running a tunnel 1,343 feet to get completely under the ore body, which has been worked quite extensively on the dip, and at a depth of only 180 feet the vein is 40 feet between the walls, and the vast body of ore shows returns of from 35 to 60 per cent lead, and from 20 to 60 ounces in silver. The richest part of this vein carries \$10 in gold, and the balance averages about \$1 in gold.

The present tunnel development will strike the vein at a depth of about 600 feet from the surface, and with the upraise for output will give an area of stoping ground of fully 500 feet across the entire vein. The ore thus far taken out of the chute, which is 300 feet in extent, has been of uniform grade as given above, and thus far there has been no cross-cutting and sinking only reached 50 feet, when too much water stopped the work. As the work is now being pushed, the mine is nicely drained by the present tunnel, and another drain can be made into the Alliance tunnel, which will strike the Comstock at a depth of 2,000 feet. This



drain tunnel is now under the Crescent, with only 1,400 feet to go to be under the Comstock, which will drain the Comstock mine to a depth of 2,000 feet. A fair estimate of the value of this property can be given in the assertion that it is bound to be one of the greatest producers in the Park City District. The surface improvements consist of tunnel houses, boarding houses, stables, etc. A hoisting plant or any heavy machinery will never be needed, as the ore will all come to the surface by gravity. The main working tunnel will be completed within 30 days, by the three shifts of men now at work.

A. Hanauer, Jr., is president of the Comstock Company; M. Bamberger, vice-president; J. M. Cohen, secretary; M. Dusseldorf, general manager; and M. S. Hanauer, C. B. Markland, and William

Kahn, along with the others, are directors.

THE LUCKY BILL.

The Lucky Bill group of four claims, consisting of the Safeguard, Lucky Bill, Home Station and Clift, lie partly in Uintah and partly in Snake Creek districts. The main shaft, 1,000 feet deep, is sunk on the Home Station claim. The ledge is fifteen feet wide, which contains a vein two and a half feet of an even grade of good ore. There are at present some 300 feet of drifts, and the present workings are on what seems indisputably an extension of the rich Daly-West vein. At one point this vein is opened up 90 feet from the tunnel, and at another point the vein is opened over the present workings. At 300 feet another drift is being run toward the Ontario ore body, and another drift is to the south

to tap still another great ore zone. All this ground is drained by the great Ontario tunnel, which makes all the workings of the most advantageous character. Within four months this company will be one of the big shippers of the camp.

Jos-ph Hatch is president; J. H. Moyle, vicepresident; G. A. Gibbs, secretary and treasurer. These gentlemen, with R. T. Kimball, R. B. Burns, E. L. Sheets and W. J. Burton constitute the board

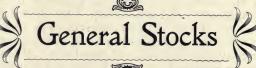
of directors.

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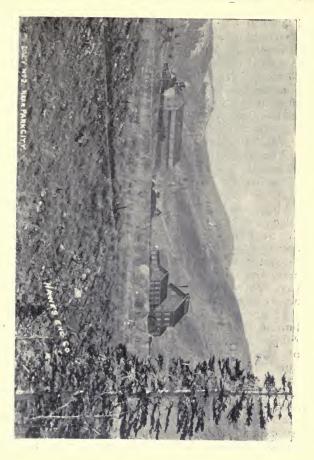
The Ontario and Daly Mines.

While these mines are recognized as under different corporations, they have but one management, and are practically owned by the same stockholders. They are recognized as the greatest mines in the state, taken as a whole. The Ontario is one of the most remarkable properties of modern times, and to date has declared \$13,265,000 in dividends. It has sunk to a depth of 1,500 feet. It has two drain tunnels, one completed several years ago, over 6,000 feet in length, and which drained all the water above the six hundred foot level.

The other, completed within a year and still being extended so as to drain all the properties of the companies, affords a gravity outlet for all the waters from the mine above the 1,500 level. tunner is three miles in length, and cost over \$500,-000 to date. As a matter of fact, this latter tunnel drains all the country above it, and this includes not only the Daly, but other extensive groups. The shafts and tunnels and levels and stopes of the Ontario, together with those in the Daly, give nearly one hundred miles of underground workings. The dumps of waste taken out of the bowels of the earth in the pursuit of ore veins from which the precious, metals are obtained are really mountains in themselves, and are becoming a serious problem as to their disposal. It is safe to say that directly and indirectly not less than 2,500 men depend upon these mines for their livelihood.

On July 19, 1872, the Ontario mine was discovered by a man named Herman Dudden. Together

with his partners he did considerable work on the property, and a short time later they were offered by R. C. Chambers \$30,000 for the claim. They accepted the offer, and the mine then passed into the possession of Messrs. Haggin, Tevis and Hearst. For two years there was a steady and heavy outlay. Something like \$200,000 was expended in the development of the property, and the returns from the sale of the ore extracted did not reach \$40,000. In January, 1874, a stock company was formed. In 1876 the company was reorganized, this time with a capital stock of \$10,000,000, divided into 100,000 shares of the par value of \$100 each, and still later the capital stock was increased to \$15,000,000, divided into 150,000 shares. a cost of \$250,000 a forty stamp dry crushing mill had been built by January, 1877. In October, 1878, a fire destroyed the works and the shaft and the expensive machinery at the mine. The direct and consequential damage caused by the mine being flooded involved a loss of fully \$200,000. The first dividend of 50 cents per share was? paid in April, 1877. This was nearly five years after its discovery. Meanwhile there had been expended in development and the erection of works and the purchase of machinery not less than \$1,500,000, while the sale of ore had realized not to exceed \$1,000,000, leaving a loss to that time of: \$500,000. Then began a series of dividends which to date have reached the magnificent sum already stated-\$13,265,000. During this time also vast sums were expended in improvements rendered necessary by the presence of water, and something like

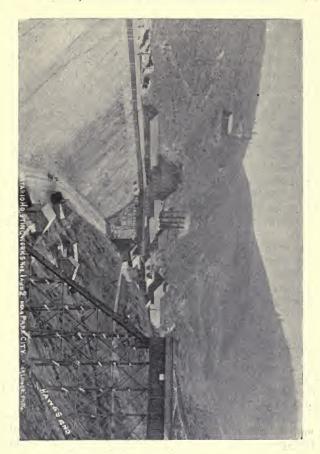


\$1,000,000 was paid out in the purchase of additional ground. The total expenditure for surface improvements and for the handling of the water is close to if not fully \$3,000,000. The ore runs from \$20 to \$50, and in streaks higher, per ton. The mine has yielded a gross product of over \$30,000,000, and is still good for tifty years of production, provided the price of silver is maintained at a point where its mining will insure a profit. This is the record of the Ontario alone. Were the figures of the Daly added to these the sums would be greatly increased.

When in 1893 the purchasing clause of the silver act was repealed and silver fell with terrific rapidity, these great mines with others, were compelled to cease the payment of dividends, and they were only resumed eight months ago, and have been nothing like so large since that time. Because of the water it was impossible to close the mines down, and there followed as a result of the falling price of silver a reduction of wages to the miners, and a cessation of dividends.

Since the date of its purchase it has known but one management and but one superintendent. All the stupendous works undertaken and completed on the Ontario and Daly, have been executed under the direction of the man who purchased it in 1872—Hon. R. C. Chambers, whose identity with the mining interests of Utah is greater than that of any other man.

Two mills, the Ontario with 40 and the Marsae with 30 stamps, are kept running steadily to handle the ores of the Ontario and Daly mines. At this date



there are close on 350 men employed in the Ontario mine, and in the Daly 225. The mills employ close on 200 more. A coal mine is operated which supplies the bulk of its coal to these mines, while the teams and men employed in hauling the coal, ores, timbers, etc., to and from the mines, constitute s.ill another large force. To secure a pure supply for steam, mill and other surface needs, the mines have an individual water system, the water being piped from lakes high up in the mountains miles away, while the great stream of water that runs through the three-mile tunnel furnishes a power by which electricity is generated to light the mines, the mills, and the offices of the company, as well as to supply power for the machine shops, saw mills, etc.

A visit to these properties would cause a change in the views of many now opposing the rehabilitation of silver.

The reduction processes and other effects of the operations of these two great mines are discussed herewith.

THE ONTAIRO MILL.

The milling, smelting, or treatment of ores, is now, as no doubt it always has been, the greatest problem in metallurgical science. To find ore and extract it from the earth is not only the primary effort, but is as a primer to an encyclopedia compared to the greater science of getting everything precious out of metallic ores that there may be in them. In milling by dry crushing and amalgamation no institution on the Pacific Coast equals in percentage of saving actual values of ores and cost of operation of plant, the Ontario Mill at Park City, under the management of Hon. R. C. Chambers and the direct supervision of Alexander D. Moffatt.

The secret of the great success achieved by the Ontario Mill lies first, perhaps, in the competency of the management, which has for twenty-two years made a daily study of the science of extraction, and run the mill on lines giving the best results and cheapening the operating expenses wherever possible. To this method may be ascribed the keeping of this mill in constant operation, even during the past few years of gold standard outrages. The Ontario ores have gradually reduced in values, until they are now about one-half what they were about five years ago, but they have reached the minimum at least for years to come.

The ore is hauled from the mines, a distance of about one mile, and dumped into the mill. It is then fed over grislers or screens, the large pieces of ore being crushed in a Gates rock-breaker. It then passes through rotary driers to the battery of stamps, where it is crushed into a powder fine enough to pass through screens of 20 and 26 mesh. At this point the salt is introduced; the ore and salt are then conveyed and elevated to the Stetefeldt chloridizing furnace, where a sample is taken every half hour to determine the actual value of the ore and the per cent of salt used. The ore drops down through the shaft or furnace 38 feet from where it is drawn and left on the cooling floor for from twenty to ·twenty-four hours before taken to the pans for amalgamation. Before going into the pans another



MR. ALEXANDER D. MOFFATT OF THE ONTAIRO MILL.

sample of the ore is taken, and then a charge of ore of 3000 pounds together with 300 pounds of quicksilver, is introduced into each pan at 160 degrees Fahrenheit, and there rapidly stirred for eight hours, when the pans are drawn off into the settlers, where the stirring process is continued more slowly and for four hours. After this the silver and all other metals extracted have been gathered by the quicksilver, which is drawn from the settlers into stationary pots and dipped into straining bags after a sample has been taken to determine the per cent of extraction. A majority of the "quick" strains through the amalgam sack and is ready for use again, while the balance is secured at the retort where the bullion is melted and run into bars ready to be shipped to the refinery.

Superintendent Alexander D. Moffatt has long had immediate charge of the Ontario Mill, and has reduced its operations to a fixed science, and it is justly accredited with being the most successful mill

on the Pacific Coast.

The mill workings for 1895 show the average assay value of the ore milled was 45.48 ounces, average assay of tailings 3.53, average per cent saved by amalgamation 92.2. Daily average net tons of ore crushed 89½. Total time loss on battery of forty stamps, 27 days and 3 hours. Percent of salt used 14½.

In June, 1882, Alexander D. Moffatt accepted the position of night foreman of the Ontario Mill. From August 1st of that year to March 1, 1886; he acted as foreman, and on March 16 he was put in charge of the Marsac mill, and remained until July 15, 1886, when Mr. Chambers placed him in charge of the Ontario mill, where he has since done himself justly proud and made a splendid record.

Rolonel "Pat" Donan.

Colonel "Pat" Donan, editor of the Utahnian, and one of the most widely read contributors to journalism of modern times, was born in Mississippi. His father was a Presbyterian minister, and founded the first church of that denomination in New Orleans. He enlisted in the Confederate service as a private. In January, 1868, he established the St. Joseph (Mo.) Vindicator, a vehement champion of the Southern people, which establishment was several times mobbed and eventually squelched by state troops in the following August. He next was editor of the Metropolitan Record, of New York, and in 1869 established the Lexington (Mo.) Caucasian, which became the most notorious and vehement of all Southern publications. It was just as bitter as it was brilliant, and most widely read. He was the originator of the "Possum Policy," which enfranchised 80,000 Confederates in Missouri. He originated the "Greelev Movement," which secured the Greeley and Brown nomination at Cincinnati in 1872. In 1876 he conducted five newspapers in North Carolina and Virginia. He wrote the famous letter to President Hayes on the "Southern Policy," which was adopted but never lived up to by the people of the South, much to the disgust of Colonel Donan. In 1877-8 he conducted a paper



COLONEL 'PAT" DONAN OF THE UTAHNIAN.

in Arkansas, and in 1879 he renounced the South and came North to Dakota, where he lived for two or three years. He had rambled over most of the globe before coming to Utah. His best contributions to literature have world-wide repute, and he is a famous orator. He is a much-traveled man, and few men can claim as wide personal acquaintance as he. The *Utahnian* is just on its twelfth number, and yet it circulates in every state in the Union, and is extensively circulated abroad.

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Beaver County.

In the southern part of a spur of mountains which begins north of Cove Creek, in Millard County, at the main Wasatch range, and runs west of south and adjacent to the town of Minersville, in Beaver County, is the once and again-to-be prosperous district of Lincoln. Discoveries of a mineral character were made here as early as 1859, and for many years the settlers kept themselves supplied with lead taken from the earth where was more recently located the Rollins mine, now and for several years past the celebrated Lincoln mine. As the country at that time and for a good while after was literally overrun with savage men and wild beasts, the importance of such a resource may easily be understood. But the lead was tolerably hard from the first, and by degrees became harder, for reasons which are well enough known now but may not have even been thought of by the settlers, though if it had been otherwise, it would probably have made no practical difference, since the people in these remote places and in such times had no scientific apparatus or chemicals with which to make analyses, and no means of making separation of the ores' constituent elements. Of course this condition could not last long, and the methods and appliances of improved mining began to drift in the early sixties.

The first regular location made in Lincoln district, together with its own formation, occurred in 1862, about which time the change of name spoken of took place, the Rollins being recorded as the

Lincoln. The first property to be spread upon the records of the district was a location made by E. W. Thompson, of Beaver City, and this was followed by many others, until now there are a hundred or more. From 1868 to 1873 a goodly town had sprung up in the ravine adjacent to the Lincoln mine, there being at one time over 100 houses and fully 500 people in the camp. Business was lively, ore was being shipped at a remarkable rate considering the lack of available transportation, and all things seemed to denote permanent prosperity. All at once a vein of water was encountered in the Lincoln, and the resources of the company had to be turned to the task of subduing it. The most powerful and expensive machinery was procured and operated for some time, but to no practical purpose, and eventually the work was abandoned.

This was a discouraging blow to the other operators in the district, and to make the rain a regular downpour Congress quietly and stealthily deprived silver of its regal function as the unit of value, and one after another the mines shut down. For some years only assessment work, with an occasional desultory prospect job was done, but lately things have taken a more favorable turn. The Lincoln, like nearly all the great mines of the country at one time or another, became involved in a perplexing network of legal complications, but has recently approached if not achieved extrication by being sold by order of the District Court, the purchaser being Hon. P. T. Farnsworth, who will put the property to the fore again. He also owns the Pioneer Mine, adjoining the Lincoln on the

east, on which he has placed some costly machinery, and when he gives the keynote the others will

surely join in the chorus as of yore.

W. L. Croff, one of the most experienced mining men in the State, has a tunnel in on the Rattler several hundred feet, and is still driving it through a very hard formation. It is a splendid property, specimens of ore showing free gold (everything in the district shows more or less gold) being taken out continually. He is also working in a desultory way on the Lane Brothers and Golden Gate, the latter a recent discovery, and altogether is setting an example worthy of emulation.

The great Cave Mine, situated in a more northerly part of the district, has not suspended work for any considerable length of time in late years, and promises ere long to spring a surprise upon the country that will be altogether agreeable.

Hon. Presley Denny has recently resumed work on the December, of which he is the principal owner. This mine is located on an immense vein, further south, on which are the Creole and War Eagle. Its position is nearly vertical, and has true granite walls. A double incline has been worked on the December, following the trend of a crooked chimney, from which ore running from 30 to 3000 ounces of silver has been taken in great abundance. There are also two shafts, which have been prolific producers; and a tunnel, in which work has lately been resumed, is in about 250 feet, cutting the north wall of the formation. The best of a group of samples assayed a few years ago by W. J. McVicker gave the truly grand result of 59 per cent.

lead, 2041.66 ounces of silver and 1.020 ozs. gold, the lowest being 12 per cent lead, 13.12 ounces silver, and .291 ounces gold. The December, with the work which is now promised, is likely to come to the fore front of producers without much delay; and what is true of it is true in a great measure of the other two named.

Other properties in the district, with more or less development, are the Minnie, Dunnerburg, Yip Yap, Home Ticket, Coral Reef, Richmond, Lucky Boy, Lane Brothers, Golden Gate, and Hoodoo, besides which there are many prospects, and all without exception show abundance of ore all carrying more or less gold, lead, and sometimes copper.

THE NEWTON DISTRICT.

The Newton is a new district in Beaver County. It is located some twelve miles northeast of Beaver City, and is therefore about thirty miles from railroad connection. In this district is situated the noted Rob Roy group, embracing ten claims, the property of Hon. P. T. Farnsworth, manager of the Horn Silver in Beaver and the Austin mines, Nevada. In the same district is the Sheep Rock, already attracting attention, and other groups. The Rob Roy has a contact vein between trachite and conglomerate; averages 6 feet in width; assays show gold running from \$3 to \$10 to the ton; but the average makes it a low grade, and the distance from railroads will render a mill indispensible to the successful handling of its ores. By what system the ores can best be treated has yet to be demonstrated. Mr. Farnsworth has a shaft over

200 feet deep, with drifts at the bottom running 120 feet in different directions from the shaft, as well as levels above the 200 foot level all showing the same character of ore. Similar claims are in the district, some east and further up the canyon. The Sheep Rock and other groups are about a mile and a half east of these properties, and while the formation is different, assays show about the same results in gold. The district is a gold one.

SAN FRANCISCO DISTRICT.

In San Franciso Mining District the only property operated is the great Horn Silver, referred to in detail elsewhere. It is in this district also that the Rattler and Carbonate mines are situated, whose output has been very great. They were and probbly still are the property of Mr. B. Hampton and H. W. Lawrence. The ore was taken out in great quantities and was very rich, but gave out, as little development work was done. It is believed the mines will yet prove prolific yielders of rich ores once they are re-opened and developed.

South of Minersville and in other parts of the county are many locations, but no work of moment

is at this date being prosecuted.

I. A. Benton, E. B. Zorlu, C. H. Link and J. C. Taylor on the American Mining Company. The property is at the head of Big Cottonwood Canyon, on Scott Hill. A tunnel in 80 feet has disclosed extensive and rich ore bodies.

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The horn Silver.

The history of the Horn Silver mine presents a fair illustration of the aid rendered by mining developments in building up the country in which mines are located. When this great mine became recognized as a permanent producer it fell into the hands of Jay Cooke, of Pennsylvania, and others, and the result was that the Utah Southern Railroad, at that time running no farther south than Juab-a little over 100 miles from Salt Lake-was extended to Frisco, in Beaver County, a distance of about 136 miles further. Had it not been for this mine, not only would this line not have been extended, but it could hardly have run but for the tonnage from this great property. It has had a very extraordinary career-almost meteoric to begin with; then it seemed to pass under a partial eclipse; then came a period when it loomed up again, and then a fire destroyed most of the perishable part of the works, and finally the low price of silver and lead have combined to make its operation far less profitable than it would have been under more favorable circumstances; yet it has yielded \$5,137,500 in dividends, and is today recognized as more valuable than ever before.

It has a concentrating mill with a 200 ton capacity daily. The crude ore runs about 12 per cent lead and 8 oz. silver to the ton—not a mountain of silver or lead, but so vast that it has, until recently, enabled its fortunate owners to realize a substantial dividend each quarter.

In 1889 Hon. P. T. Farnsworth became the



HON. P. T. FARNSWORTH OF THE HORN SILVER MINE IN UTAH AND THE AUSTIN MINE IN NEVADA.

manager of the property, and the increase in the output from that time on until the fire swept away all that could be burned will give some idea of the capacity of the mine under energetic management. In 1889 the value of the product was \$280,465.42; in 1890, \$341,306.06; 1891, \$362,737.68; 1892, \$377,025.88; 1893, \$491,429.89; 1894, \$136,604.53; 1895, \$181,278.92. During the last named year the effects of the fire the year preceding were still apparent in the decreased production compared with former years. Then, as the product is measured in dollars and cents, it will be apparent that the fall in the price of silver and lead has had much to do with the showing, though the tonnage might be even greater.

The Horn Silver has passed through many vicissitudes, but it is now the property of a company and under a management capable of making the best out of it. Mr. A. C. Washington, of New York (who is also associated with Mr. Farnsworth in the great group of mines at Austin, Nevada, which are being developed under Mr. Farnsworth's

direction), is President of the Horn Silver.

The company is capitalized for \$10,000,000, divided into 400,000 shares of a par value of \$25 each. It has miles upon miles of underground workings, and is accounted one of the greatest mines of the state. The length of time it has been yielding indicates its permanence, and there is no sign of diminution in the ore bodies, which have already yelded such immense treasures.

A Great Copper Property.

BY C. L. DIGNOWITY.

During a late visit to San Francisco mining district, and after a brief inspection of the famous Horn Silver mine and the concentration of its ores, I took in the great Copper gulch, some three and a half miles west of Frisco. To my great astonishment I was confronted with one of the most remarkble copper propositions upon the American continent. To put it mildly, there is a solid bed of copper, in its various forms and conditions, one quarter of a mile wide by one and a half miles long, which is visible to the eye, and it is natural to suppose that much greater values are stored in the earthly vaults below. From careful selections of ores from the many vein shoots, I received the following results:

1st, vein 75 feet wide, average sample went copper 7 per cent; iron 7 per cent; gold \$4, and silver

\$5.25 per ton; "sulphide of copper."

2nd, average (width of vein 68 feet), copper, 30 per cent; iron 22 per cent; gold \$21; sılver 38 ounces; "sulphide of copper."

3rd, (vein 45 feet wide), copper 28 per cent; iron, 20 per cent; gold \$8; silver, 84 ounces. This was a grey copper conglomerate predominating, with a strong mixture of sulphides, especially with the iron.

4th, (vein at least 85 feet wide, and above the other ledges some 125 feet), copper 6½ per cent; iron, 7 per cent; gold, \$3; silver, 16 ounces.

The major portion of these ores could be concentrated down to one third, and shipped to Salt Lake City or Denver, and would yield to their

owners handsome profits. There is abundance of good spring water, and plenty of cedar and spruce-pine timber near by. The climate is dry and equiable all the year, and I cannot understand why this has not become a great productive camp long since. In truth it has been sadly neglected; still it has its time to rise and meet others that have become famous producers. I understand that a strong French company, with ample financial backing, have secured some claims in copper gulch, and have let a contract for a 200-ton capacity mill per day concentrator, which is costing them complete \$60,000. If true, it's a good start for another "Anaconda," in which the Rothschild invested four to five million dollars for a block of stock, and which sum did not even give control. This shows the value of copper property. With the new electrical inventions, and the completion of the great Salt Lake Copper Plant, now under construction and perfection, Gopper Gulch, as well as the Montreal Copper group, at Rocky, ten miles east of Frisco, will become famous for their valuable outputs. These copper properties are owned by Salt Lakers.

Some of these days and not far in the future, there will spring into new life and activity many valuable mining camps in the vicinity of Frisco that will re-establish its golden record. New strikes and finds in Utah have caused desertion of this section; still my observations of the various mines and mineralization of that section lead me to believe that it will become a renowned and famous mining camp.

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Gintic District.

Tintic is one of the earliest mining districts in Utah. It covers an area about eight miles in length by two miles in width, and is separated by distinctive formations into what may be called the south and north halves. The south half is a porphery area, the veins ranging from two to ten feet in thickness, and are very rich in silver and lead. The veins run north and south. They were worked to a depth of 150 to 300 feet when pyritic iron, carrying only small values in the precious metals, were encountered. The general supposition being that the veins had failed, work was suspended. In 1893 Mr. Hatfield, now Mayor of Eureka, relocated the old Swansea, which in the past had yielded \$1,000,000, and began sinking a shaft. He worked in a small way till the fall of 1895, when the shatt penetrated the iron zone and disclosed a very rich lode of silver and lead ore. Since the extensive developments within the limits of this rich lode have demonstrated that the valuable ores underlaid the iron cap, nearly all the old properties have been acquired by new companies, which are now sinking on the old shafts to greater depths or are making new workings from the surface. No less than fifteen of these old claims are now under process of vigorous development. Among them may be mentioned the Swansea, South Swansea, Four Aces, Yankee Girl, Sunbeam, Undine, Shoebridge Bonanza, Homestake, Buckeye, Treasure Box, and others. All these are located in the porphery area to the south, and in the vicinity of Silver City.

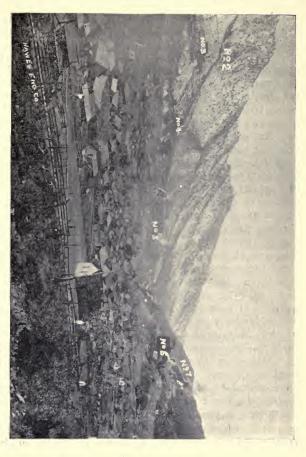
In the north half of the district the minerals occur in wide belts of limestone, ranging in width from 150 to 600 or more feet. The ore bodies occur in the form of great lenticular masses of quartz, carrying gold, silver, lead and copper as the valuable minerals, while in places the ores are rich in iron and manganese. Copper ores occur, particularly in the Eureka Hill, in the north end of the district, and in the Mammoth, Ajax, Caresa, Red Rose, Boss Tweed and North Star properties in the south end of the north half of the district. In the northern portion of the district, around the town of Eureka, the principal values are in gold and silver, the silver occurring in the form of a carbonate near the surface and in galena at greater depth; the exception to this condition being found in the Eagle mine, which has produced principally gold, and in the Centennial-Eureka mine, where gold occurs in considerable quantities, representing, it is believed, fully one half of the value of their output.

The gold bearing rock, as a rule, occurs in the bedding planes of the lime, forming cross country veins within the mineralized zone, having a strike and dip coincident with the bed of the country. The formation is pseudomorphic after the lime. Usually the class of ore mentioned in this district carries by assay from one to several hundred ounces of gold, while ore shipments show the gold to range from

 $2\frac{1}{2}$ to 30 ounces to the ton.

This class of ore usually carries from 1 to 2 ounces of silver to each ounce of gold. The silver usually occurs in veins forming in more or less





regular north and south lines, with a general dip to the west, cutting the formation of the country at an

acute angle both in strike and dip.

The ore occurs in distinctive chutes, usually connected one with another by pipes or ore channels running almost any direction from the horizontal to the vertical. From such an ore pipe or chute the large ore output from the Bullion-Beck mine has been derived during the past two years.

Among the deepest workings in the district are

Among the deepest workings in the district are those in the Mammoth mine, in which they have uncovered, in the past year, two distinctive ore channels. One of these is about thirty feet in thickness, carrying low grade siver-lead ore yielding from 10 to 20 ounces of silver, with a trace of gold. The other ore channel is some fifty feet in thickness, carrying gold quartz almost destitute of silver or lead, varying in values from 1 to 30 ounces in gold to the ton, one shipment of 100 tons netting to the company the sum of \$24,000.

Even the deepest workings in Tintic—in fact, all the workings—are absolutely free from water. It is anticipated that it will be at least 600 feet below the present deepest workings—and those in the Mammoth are now 1,500 feet below the surface—before permanent water level is reached.

Mines in this district have been continuously worked during the past twenty-seven years, and have added to the world's supply of the precious metals, together with the lead and copper and iron contained in the ores, many millions of dollars.

The workings in the various mines are extensive, and while the total aggregate of development is

not obtainable, it is believed by the well-informed mining men of the district, that the total underground workings in the mines of the district would

not fall short of sixty miles.

A peculiar feature of the district, and one conclusively demonstrated by the deepest workings, is that the gold values increase with depth. It is the only instance ever known of where silver, lead and copper veins have lost the basis and silver values with depth and increased their gold values, the gold occurring in deposits of quartz associated with barita, usually known as heavy spar. While the general average of the values is maintained with depth, the gold extracted, as compared with

the gross output, is constantly increasing.

Prior to 1893 all the ores extracted in the district were shipped to the smelters for treatment. All ores not possessing sufficient values to warrant their transportation were accumulated on the waste dumps. As there was in the district no water available for milling purposes it was impossible to make any use of these ores. However, during the year 1893 the Mammoth Mining Company constructed a pipe line from Cherry Creek, a distance of twenty miles, and erected a magnificent pumping plant, with a capacity of 600 gallons per minute. The cost of this enterprise was in the neighborhood of \$130,000. During the same year the construction of quartz mills was inaugurated, and at the present time there are operating in the district the following mills: Eureka Hill, 100 stamps, daily capacity 250 tons; Mammoth, 60 stamps, daily capacity 180 tons; Farrell mill, 20 stamps, daily

capacity 60 tons; while the Bullion-Beck has a roller mill and concentrator combined, with a daily capacity of 200 tons, giving in all a capacity for handling 690 tons per day. In addition to this there are shipped from the district an average of 105 cars of first-class ores per week, or about 2000 tons per month. The tonnage output of Tintic district for the year 1895 approximated 30 per cent. of the total tonnage of the state, representing, it is estimated, 35 per cent to 40 per cent. of the gross value of the output of metals for Utah.

While very many of the companies are close corporations, and it is therefore impossible to obtain detailed figures, it is conservatively estimated that the net proceeds from the operations of the mines in Tintic for the year 1895 was

\$2,300,000.

The population of the district is steadily increasing, and it is safe to include Tintic today in the leading mining districts of the Rockies. The best evidence of the growing prosperity of the district will be found in the railway tonnage which, since 1893, has increased seven-fold.

There are large areas of undeveloped territory embraced within the mineral bearing zone which can be acquired by purchase at moderate figures, or interests in which may be had for development. It will not be strange if within the next two years large additions are made to the present monthly output of ore, as there are several development companies at work penetrating the hills in different directions by deep shafts, tunnels and cross-cuts. That the mines are permanent in character is not only evidenced by the years they have been worked,

but by the heavy investments being made by those most familiar with the district. Mr. J. A. Cunningham, one of the principal owners of the Mammoth mine, has recently completed, at his own expense, a standard gauge railroad connecting the Mammoth mills with the mine some 500 feet higher up the mountain side. It is about two and a half miles in length, and is said to have cost about \$60,000. This little line also touches the Ajax mine, and will also handle the ores from the Sioux and Utah mines on the other side of the mountain when the tunnel now being driven in under the direction of Mr. Geo. H. Robinson is completed. This tunnel will be some 4000 feet in length, and will serve for the prospecting of a vast area of mineral bearing territory now inaccessible because of the steepness of the mountain.

As this book goes to press there is every reasonable indication that the Tintic Mining District is on the eve of an unparalleled era of prosperity. The recent rich discoveries of vast ore bodies beneath the pyrites at Silver City makes this idea more than plausible. The strikes in the Swansea, South Swansea, Four Aces and numerous other properties at Silver City would seem to preclude all possible doubt as to the future of this paticular camp. Along about the first of July there was barely a half-dozen men in the camp, and the houses that had held the population off and on for twenty-seven years were vacated and mostly in ruins. Since that time, by sinking below the pyritic strata, strike has followed strike so thick and fast that now the place is filled to overflowing with anxious men seeking a claim-footing in the

district. Every precaution was taken by the few natives to keep the good news as hushed as possible, and while the actual conditions are not generally known, the truth has been sufficiently spread to make Silver City one of the livliest camps in the state. Every sheltered space is occupied, and buildings are going up as fast as lumber can be procured, and workmen to build them. Many are sleeping in tents, and the hotels use tents for the overflow of guests. A new hotel known as the Silver City will be completed by September 1, and still another hotel will be completed before snow flies. Several saloon buildings and numerous cabins and dwellings are in course of construction, and until these are finished many of the newcomers can only find sleeping accommodations at Mammoth and Eureka.

C. H. Blanchard, the present recorder of the district, has been continuously in office for seventeen years, and has filled twenty-two books of record of claims filed in that time. S. B. Moore was the first recorder, and N. P. Lake was his deputy. Then A. G. Sutherland followed, and was succeeded by Mr. Blanchard. in July, 1879. He has claims all over the district, which have long been idle, but will now be opened up and fully developed.

With the location of the Sunbeam lode dates the organization of the Tintic mining district, December 13, 1869. The Black Dragon was the next location, Jan. 3, 1870 and then came the Mammoth Feb. 26, 1870, which was immediately followed by numerous others. In the Tintic range of mountains, and west of the Goshen Valley, is the district which is ten miles east and west and fifteen miles north and south, or to be more explicit, it extends four miles north of Eureka, seven and a half miles south of Silver City, three miles east of Homansville, and two miles west of Eureka, which constitute North and West Tintic mining districts. West Tintic lies beyond Tintic Valley, west of Tintic district, fifteen miles distant. This area comprises 350 square miles of the most advantageous mineral bearing country. The general formation admits of rapid development of mines, there being no underground waterways, and but little timbering is required. The ore values are generally high, and are cheaply mined, but the greatest wealth lies in the inexhaustible bodies of low grade ore which can now be treated at small expense. The average Tintic ore is of a higher grade than that produced by any district in Utah. Silver and gold, copper and lead are the chief products of ores that flux easily and are very desirable for smelting. The ore zones lie as fissures in the porphyry in the South half of the district, and in a series of veins in lime in the northern half, and the district is thus divided into two parallel ranges connected by cross spurs. Quartzite extends northward from Silver City, and eastward it comes up against lime. Between these is a belt of slate or shale, and here and there through the belt are quartzite dykes, thrown across into the main lime formation. From Mammoth Hollow north the ore zone lies in blue and gray limestone, but southward the lime dips and is overcapped by porphyry. There is country rock for several miles when the lime appears again, at times overlying the porphyry. Quartz comes to the surface occasionally through the porphyry. The surface water supply for domestic and steam purposes is ample, and the fact that the district is "dry" makes it all the more desirable for mining purposes and does away with that bug-bear of expense, the

pump.

The principal towns and camps in the district are Eureka, Silver City, Mammoth, Diamond City, and Homansville. In the town of Eureka are located such bonanza properties as the Bullion-Beck and Champion, Centennial-Eureka, Eureka Hill, Caroline, Red Bird, Gemini, etc. Other important Tintic properties are the Albany group, Dipper and Eclipse group, Black Dragon, Brookline, Boss Tweed, Carisa, Ajax, Cleveland Consolidated, Dana group, Dandy Jim, Damficare, Diamond, DePrizen group, Eureka Hill, Eagle, Fair View and Side View, Giant Tunnel and Mining Company group, Godiva, Golden Ray group, General Logan, Governor, Hungarian, Iron Duke, King James, Lake View, Labonta, Mattie Bell, Monterey, May Day, North Star, Northern Spy, Passadena, Phœnix, Richmond, Red Rose, Rust Dragon, Santaquin, Sioux, Silver Spar group, Silver Hill group, Silver Bow, Swansea, South Swansea, South Mammoth, Snowflake Success. Tetro, Trail and Black Jack, Tintic Iron Company, Tintic Tunnel Company, Utah, Chief, Uncle Sam, Union Pacific, Victoria, Dogmar, etc.

On Godiva or Eureka Mountain are the

Anaconda group, Marion Consolidated, Medea Consolidated, Plutus, Davis and Schmidts group, and other good claims.

On Mammoth Mountain are the Eureka Consolidated, Rebel, Golden Chain, Cleveland, Napoleon,

and Openhonga.

South of Dragon Hollow are located the Rattler and Roadside, Gladstone group, Lucky Wheeler, Sunbeam, Pride of the Hills, June Rose, Martha Washington, Silver Coin, Undine, Joe Daly, etc.

On Gold Hill are Lady Aspinwall, Moore, Independent, Golden Treasure, Tesora, Jersey and Julia Lane, Bonanza, Joe Bowers group, Morning Glory, Gum Drop, Rising Sun, Belle of Butte,

Susan, Galena and the Sea Lion group.

On the north side of Eureka Gulch is the Tintic Cave mine and the Richmond group of six claims; the Equator group, Alamo group, Gladstone group, Champion and famous Keystone or Gemini, Colorado Chief, Rising Sun, Retribution, Mamie Consolidated, Black Warrior, Missouri Lass, Tone and Hopper group, Manhattan, Seneca, Shamrock, Mohawk Queen, Colorado Belle, C. W. B. group, and D. and R. G. group.

In North Tintic, or about three miles north of Eureka, the North Eureka Mining Company has four valuable claims; John Davis and John Strom also have groups of valuable claims near by; the Copper Gulch consists of five claims; Mammoth of the North, two claims; the Forest King is a good one, and three miles further north is the Iron Mountain group; also the Ajax and Essex; still

further north the Miller and Bennett group, and seven miles northwest from Eureka is the Bullion, and seven miles east is the Gold Blossom, and near the latter is the Denver and Ogden group of six claims.

In the vicinity of Homansville is the Annie Consolidated, consisting of four claims; the Calliope group of six claims, and the Iowa group.

The West Tintic district lies in the West Tintic Mountains, on the west side of Tintic Valley, sixteen miles from Eureka. The district has an area of about ten miles square. The most noted properties are the Scotia, Lucille, Silver Bell, Silver Star, Oh Be Joyful, Stonewall Jackson, and Brunswick, Eighty-Eight, Northwestern, New Brunswick, Hard Cash, Hail Stone, Ninety-Two, Red Bird, and Copper Star. There are scores of other claims that have more or less development, and will be mines when developed.

IN SILVER CITY.

The Silver Bow group of four claims is now leased by George Kappes and others, and they are keeping abreast of the boom with a good output of pay ore.

A good flow of water was struck in the Tesora shaft at a depth of 152 feet, and the only pump in the camp is in operation. The Buckeye, south of Diamond, has also plenty of water and has a pump in operation.

The Cleopatra is an extension of the Swansea, and lies right in the center of the town of Silver City. It is owned by Hon. C. E. Allen, C. J.

Pence, A. L. Simondi, Paul Rodenhouse and J. A. Bard, of Salt Lake City. A shaft now down seventy feet will go to bed-rock, and then a crosscut will be run to the Swansea vein. This is one of the most promising prospects in the district. The Stemwinder group of three claims near by is owned by Messrs. Bard, Simondi, Hudson, Colburn, Rodenhouse and Monter, of Salt Lake City. One shaft is 125 feet, and another is 50 feet deep, and both are in ore.

J. A. Bard is also a part owner in the Silver Moon, Pocahontas, and Dubie, of the Sunbeam group, along with Marcus E. Jones, Kenzie, Locke and Twamley, Conrad, Merrill and Pence, and Hammond and Dubie.

Hon. Glen Miller, of Salt Lake, has a fortune in the Primrose, which has already produced over \$100,000.

AT DIAMOND.

While Diamond is one of the oldest camps in the state, it has long been idle, but is reviving along with the balance of the district, and everybody who sinks deep enough is striking it in the uniform grade of ore that underlies the pyrites.

THE HOMESTAKE

Is a company possessing a very enviable and substantial list of stockholders. It is in the Diamond part of Tintic district on the south side of the old Treasure hill which in times past produced several fortunes, and adjoins Mr. H. W. Lawrence's Morning Glory. The Homestake is an

old property, and has produced in the past, and in fact, produces today; but while the vein is well defined it is not yet in the ore as it promises soon to be. A shaft 210 feet is now on the property and the intention is to sink 100 feet further before drifting. The company is capitalized for \$400,000 divided into 400,000 shares of a par value of \$1 each. J. H. McGhan is president; Chas. Baldwin vice-president; J. T. Harris secretary and treasurer. with G.W. Heintz and with E. V. Bates the gentlemen named are the directors. The company owns four 600x1,500 and one 200x1,200 feet claims.

Adjoining the Homestake is the Morning Glory, owned by Hon. Henry Lawrence of Salt Lake City. The shaft is now down two hundred feet and will sink to the five hundred with a new hoist which will soon be in place. At present a good grade of copper and chloride ore is being shipped from the one hundred foot level. This ore also carries a big percentage of iron, and some gcld. A contract for sinking 100 feet further on the working incline of the Morning Glory on Treasure Hill, Diamond, has just been let. This incline was already in 180 feet, and very good ore has been shipped from the claim going 200 oz. in silver.

The Buckeye group of five claims is owned principally by John Beck and J. W. Green, of Salt Lake City. They have a shaft down three hundred feet, and are still sinking. At the same time considerable high grade ore is being shipped. The water encountered has proven more of a blessing than hindrance to operation.

The Showers group of five claims is owned by Walker Brothers of Salt Lake, and are being worked under lease.

The Eva Mining Company is principally owned by Frank Woodward and others, of Spanish Fork. At present the work is on drifting from the fifty-foot level to catch the vein, which will be reached in about one hundred feet.

NORTH TINTIC.

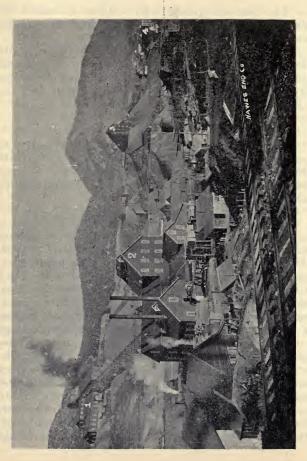
In North Tintic, about three miles north of Eureka, and located on the same belt, the North Tintic Consolidated Mining Company owns a large and valuable group of claims, which show good values of both gold and silver.

BULLION-BECK AND CHAMPION MINING COMPANY.

The story of the Bullion-Beck mine sounds more like fiction than fact to those familiar with it. About 1870 John Beck, to use his own expression, was rolled down the hill "on to the Bullion-Beck mine." Some interests had by him there he lost, and he began to wander about, pick in hand, looking for an opening. One day as he walked along, he ran across two men leaning against a very large boulder. He rested with them for a time. They moved off. Then, without serious thought, he located a claim there. This was the Bullion-Beck mine which to date has added between \$8,000,000 and \$10,000,000 to the world's wealth.

The men he had talked to came back, tore down his location notices, and tried to force him off. But he held on. Finally he gave an interest in the





ocation to some men who had been working for him on the Eureka Hill. They began developing the claim and the others grew dissatisfied with the showing, holding it was merely a slide and not the cropping of a permanent vein. So Mr. Beck gave them \$5 each—\$15 in all—and \$15 meant some money in those days to Mr. Beck. The boulder stood just about where the Bullion-Beck shaft is now.

Then he began work. Every possible disccuragement was offered him. He was poor. Would work on the claim until out of food, when he would start out and turn small trades until a little surplus had been accumulated when he would go back to his mine. Then a little ore would come in. This he would take out and haul to the smelters in a light wagon he owned, and from its sale would return to further develop the mine, which had become to him all that there was in life for subsistance. The contrast between the conditions today and then are so great that they can scarcely be realized. The mine has paid over \$2,000,000 in dividends; it owns over 100 acres of surface mineral ground, on part of which the city of Eureka is located. The mine has only been partially opened to a depth of 1,000 feet, the shaft being only 900 feet in depth; not one-third the area owned by the company has been opened by its lateral workings, and as to depths, there is no rational limit to the work that yet may be done-while the developments in other mines in the district prove that not only does the ore continue to 600 feet greater depth than the Bullion-Beck has really opened, but that it becomes

richer with depth. Its average value shows 12 per cent lead, 52 oz. silver, and \$1 in gold, though it has yielded for a year \$8 in gold to the ton. combined mill and concentrator, with a capacity of 200 tons daily, is steadily run upon the low grade ores, which are practically limitless. In conjuntion with the Centennial-Eureka, the Bullion-Beck owns a water system at Homansville. It is numbered among the great mines of the west. Mr. Beck is one of the few men discovering great mines who live to enjoy the blessings of their discoveries.

In 1887 the Bullion-Beck was defendant to a law suit, brought by a neighboring company, which cost the company over \$300,000 and occupied thirteen weeks in court-every day, save Sundays. While the result is not always the same, it is a common saving among parties in interest that a mine is of little value which has not had its lawsuit, and

mining litigation is always expensive.

The company is capitalized for 100,000 shares of a par value of \$10 each. John Beck is president and manager; Mr. W. J. Beattie is secretary. These two gentlemen, with Geo. Q. Cannon, H. B. Clawson, Simon Bamberger, W. S. McCornick and Clarence K. McCornick constitute the directory.

THE UTAH AND SIOUX GROUPS.

The Sioux and the Utah were located about 1880. They fell into the hands of Hon. T. R. Culter, Mr. S. S. Jones, and that indefatigable miner, Ed. Loose, and others. In prosecuting the work, Messrs. Jones and Cutler bought out many of the other owners, among them Mr. Knight,

owner of the new find, the Humbug. In 1893 Mr. Geo. H. Robinson, the mining expert, and Mr. Franklin Farrell, of Ansonia, Conn., bought into the Sioux, securing a control for a fixed sum, conditionally on the erection of a mill—a condition complied with. Later they also obtained control of the Utah. The Sioux group is capitalized for 100,000 shares, \$10 each. F. Farrell, S. S. Jones, T. R. Cutler, Geo. H. Robinson, and F. H. Peyton are directors. Mr. Farrell, president; Mr. Jones vice-president; and Mr. Peyton, secretary and treasurer.

The Utah is capitalized for 250,000 shares of a par value of \$1 each. S. S. Jones is president; T. R. Cutler vice-president. These gentlemen, with Geo. H. Robinson, L. Holbrook, and F. H. Peyton constitute the directorate. John R. Twelves of

Provo is secretary and treasurer.

The Utah and Sioux mines, owned by distinct companies, but practically the property of the same persons, may be classed among the close corporations, because the stockholders are so few that little of public interest attaches to them. However, Mr. G. H. Robinson, the noted mining engineer, and Mr. Franklin Farrell are the chief owners. The Farrell mill works the ores from this group of mines, while a tunnel to go into the mountain 4,000 feet and already in a distance of over 1,000 feet since last May, is under direction of Mr. Robinson and is supposed to be connected with the mining companies named. The Sioux and Utah are on the east side of the mountain from the Mammoth

and Ajax, and the tunnel is on the west side of the range, so that the ores from the mills, once the tunnel is completed, will all come to the west side on which are the mills and the railroads. Great development work is going on in the Sioux and Utah mines, and it is a safe statement that every dollar of profit made out of these is being put back in development work, so confident are the owners of the value of their properties. Moreover, these works are under the direction of Mr. Geo. H. Robinson, than whom no mining engineer inspires more confidence in what receives his personal supervision. But no data could be had, Mr. Robinson being averse to any publication affecting the private interests entrusted to his charge.

THE CENTENNIAL EUREKA.

The Centennial-Eureka, one of the famous mines of Tintic, has thirteen claims, and has the deepest shaft in the state—1,535 feet. To date it has paid \$1,800,000 in dividends; these come regularly \$30,000 per month, and the months are frequent when an extra dividend is declared. The company is capitalized for 300,000 shares of a par value of \$50 each, and it is one of the few mines the stock of which commands more than par. It has one of the finest plants in the west, and it is equipped with a hoist to permit sinking to a depth of 3,100 feet. The product of the mine is silver and gold, said to average about half and half. Work began on the mine in 1884, twelve years ago, on September 12, and its record has been phenomenal. On that date Mr. J. D. Kendall took

charge and remained there from that date until he voluntarily resigned August 1st, 1896. Since that time Hon. C. E. Allen, Utah's present Congressman, has been manager of the Centennial Eureka. Captain J. T. Woodman is president of the company; J. E. Bamberger vice-president; W. W. Chisholm treasurer. These gentlemen, with W. C. Staines, and W. M. Bradley, constitute the directory. Captain Hank W. Smith is superintendent.

As an evidence of the necessities of a big mine, it may be stated that at the machine shops of the Centennial-Eureka a $6\frac{1}{8}$ inch diameter telescope is being built for Mr. Chisholm. Every particle of the mechanical work is being done in the shops—outside the manufacture of the lens—even to the brass castings, and which are the product of one of the company's employes.

Established 1855.

Incorporated 1885

GEO. T. BRICE, PRESIDENT

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SALT LAKE CITY, - UTAH.



HON, RICHARD, MACKINTOSH, MINE AND SAMPLER OWNER.

THE GRAND CENTRAL.

No more nervy mining operation has been undertaken in recent times than that of the Grand Central. The ground owned by this company adjoins that of the wonderful Centennial Eureka, and the confidence of its possessors is so unbounded that in the past fourteen months they have sunk over \$90,000 and are still expending a proportionate amount each month, and not a dollar of the stock has been offered for sale. None but the original investors has ever been asked to contribute a cent, A double compartment working shaft, with a manway 71/2x15 feet, has been sunk over 800 feet, and a drift 800 feet long has been run on the 200 foot level, and while not an ounce of ore has been taken out, the confidence of the company that they have a bonanza, which they will soon strike, is perfect. Every foot of development work to date has verified their judgment and confirms the assurance had by them before they began work—that the Grand Central will be one of the greatest of Utah's great producers. Mr. Ed. Loose, an old time miner of great experience, is developing the work.

O. R. YOUNG,

=Civil Engineer=

Irrigation, Construction, Railways, Mining.

U. S. DEPUTY MINERAL SURVEYOR.

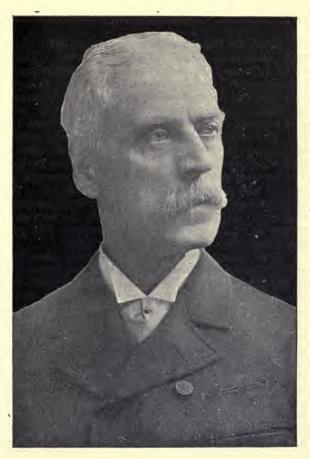
511-513 McCornick Bldg., Salt Lake City. F. O. Box 792.

EUREKA HILL AND GEMINI COMPANIES.

These are close corporations, Hon. J. Q. Packard being president and R. J. Hilton secretary of both. Nothing could be ascertained as to their dividends. but both are undoubtedly very profitable properties. Both are at Eureka, and the Eureka Hill has recently finished a 100 stamp mill with a capacity of 250 tons daily, varying as to more or less according to the ore-less if harder, more if softer. They produce gold, silver, lead and a little copper. ores that are milled range from 12 to 25 oz. in silver and 4 per cent lead, with about \$2 in gold. Those ores that are shipped direct to the smelters range from 70 to 100 oz. in silver, 10 per cent to 15 per cent lead, and \$8 to \$10 in gold. The mines have been operated by Mr. Packard since 1872-or now twenty-four years, and are among the most conspicuous of the notable properties in the district. Undoubtedly they have been heavy dividend payers. In both groups a depth of 1,100 feet has been reached, and the characteristics of the ores, elsewhere mentioned as prevailing in the district, hold good in these mines. A water system, owned by the Eureka Hill Company, and located at Homansville, supplies the mines with necessary water.

The Eureka Hill is capitalized at \$1,000,000, the par value of shares being \$100. The Gemini group is capitalized at \$500,000, the stock having a

par value of \$100 per share.



HON. CHARLES CARROLL GOODWIN, SILVER CHAMPION OF THE WEST.

THE MAMMOTH.

Work on the Mammoth began in 1871. It was then desirable as a copper property. Despite many untoward circumstances, it has maintained an almost steady development, and has to this date been the chief factor in that particular portion of the Tintic district known as Mammoth, in which it is located. Its shaft has gone to a depth of 1,500 feet, and it has a vast area of unexplored ground. Machinery is now being placed to sink 300 feet further, work on which will commence at once. The ore comes in immense deposits, averaging \$9 in gold and about 8 oz. in silver to the ton. Running through these bodies are streaks of extremely rich ore, and occasionally a high percentage of copper is obtained, though the copper has given way generally to a higher value in gold.

A 60 stamp mill has recently been completed, and it is estimated that were no more ore broken, the 80,000 tons on the dump and broken would keep the mill going for a long time. But the ore is not lost. In exploring new areas in the limits of the Mammoth's great possessions, ore has been found to the north of the old workings, in what was long thought to be barren ground, while the now admitted characteristics of the north half of the district—large ore bodies connected by pipes or channels, establish the assurance that there is practically no limit to the deposits contained in the Mammoth's ground, not one-tenth of which has yet been explored laterally. Some of the shipments have shown that the ore would run as high as 30

oz. to the ton—or over \$600 in gold. A pipe line costing \$130,000 was put in by the company to supply water, while the 60 stamp mill cost \$160,000. So far but 40 stamps have been at work, but in a short time work will begin on the lead ores that the mine produces, and the remaining 20 stamps will be utilized on this class of ore.

The company owns 9 claims, giving it a surface area of some 80 acres.

In all, the mines of the group have netted about \$2,000,000, some \$500,000 of which have been put into improvements. The Mammoth has always paid for its own improvements, never taxing the stock by assessment for any work. The put of the Mammoth product has carried about 84 per cent gold, 14 per cent silver, and 1 per cent base metal.

The company is capitalized for \$10,000,000. Wm. J. McIntyre is president; Jas. A. Cunningham, vice-president; H. S. Young, treasurer. These gentlemen, with S. McIntyre, W. W. Riter, J. T. Little, and P. T. Farnsworth constitute the

directory. Mr. Fred Corker is secretary.

THE AJAX.

Under many names and possessed by contendcorporations, the Ajax, formerly the well-known Copperoppolis, seems to have taken a new and permanent lease of life. For years it had been a bone of legal contention, first controlled by one and then by another interest, each, when in possession, taking out the ores and yet doing as little development work as possible. The upshot of it all was that the value of the mine was almost

destroyed, and as its interests seemed also to conflict with those of the Champlain, the owners of the latter bought out the adverse claimants for something like \$50,000 and took hold of the property and began work. Up to this time not to exceed 200 feet had been gained in depth in all the works undertaken, and as the ore bodies gave out because no development work was done, it is not surprising that this mine, like so many other good but abused properties, should have been deemed well-nigh worthless. Since the property fell into the hands of the Ajax Company, of which Mr. Frank Knox, the well-known banker, is the president, over 300 feet in depth of working has been gained and the mine is today recognized as one of the most promising in the state. The high range of ores, as resulting from actual shipments, show 4 oz. of gold, 40 per cent copper, and 12 to 30 oz. silver. These are the maximum figures for car load shipments. The Ajax, of all the mines in the district, seems to show the greatest per centage of lead. Arrangements are making for a run on the low grade ores in the Farrell mill in the district, and it is more than likely that it will, within a year, have a new and modern mill of its own for the reduction of such ores as will not bear the cost of transportation.

The company is capitalized for 300,000 shares of a par value of \$10 each. Frank Knox is president and treasurer; S. McIntyre, vice-president; Isaac Jennings, secretary; R. G. Smith, assistant-secretary. These gentlemen, with the exception of Mr. Smith, and with the addition of Mr. H. M. Ryan, W. H. King, Geo. A. Lowe, and W. G.

Nebeker are the Ajax directors.



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Manitou, Denver,

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THE HUMBUG.

This, while not by any means a new property, has but recently shown ore, and it is one of a very high grade. It is owned by Mr. Jesse Knight and Sons, and will soon be accounted among the shippers of the district. A road is now being built to the property so that the ores can be taken away. After a great deal of seemingly hopeless work, Mr. Knight began to drive a tunnel in new ground, and then an ore body was exposed showing how much deception may be in a mining name—the Humbug being anything but a humbug. Mr. Knight is by one-half the inhabitants of Tintic congratulated, by the other half envied.

THE GODIVA.

This is a property in which Mr. John Q. Packard, president of the Eureka Hill and Gemini companies, is interested. A new hoist is being erected, and thorough preparations are making for a more extensive extraction of the ores discovered, and wider developments than has hitherto characterized the workings of the Godiva.

The Black Dragon Mining Company owns the Black and Rust Dragon claims at Silver City, the second locations made in the Tintic district, and the twelfth claims to be patented. Various circumstances—such as their passing through estates, the segregation of interests, legal complications and then the fall in the price of silver—operated to stop work on the claims. In April last, however, they became the absolute property of the above-named

company, since which time the claims have been worked and are destined to continue being worked. An old shaft 125 feet deep is being straightened and retimbered and put in working order and being sunk upon. If there is such a geological occurrence as a true fissure vein in limestone-denied, however, by experts-it is conceded that the Black Dragon has it. The ore is milling in character and is very rich in streaks running, as high as 343 oz. in silver and \$58.80 in gold and 25 per cent in copper.

It is officered thus: L. L. Terry, president; J. H. Brown, vice-president and treasurer; and E. D. Woodruff, secretary, all of Salt Lake. These, with E. D. Ellis, Allan Conkling and Fred N. Peat, all of Chicago, are the directors. The corporation is a close one, all the stock being owned by the gentlemen named.

The STAR CONSOLIDATED at Silver City embraces a group of claims that have been successfully and profitably worked for three years. There are two tunnels on the property, the upper 260 feet in length, from which a winz has been sunk 110 feet. The lower tunnel was in a distance of 600 feet August 1st, from which also a winz had been sunk 275 feet. A working shaft has been commenced, which is to be sunk 1,000 feet. The chief product of the Star Consolidated is gold, though it yields also silver and some lead. The corporation is a new one.

The officers are H. W. Lawrence, President; Milan Packard, vice-president; W. J. Lawrence, treasurer; Geo. N. Lawrence, Secretary. Directors, H. W. Lawrence M. Packard, Chilean Packard, Julia A. Kimball and W. J. Lawrence. W. J. Lawrence is superintendent. The company ownes five claimes and is capitalized for 15,000 shares of a par value of \$10 each.

THE NORTH TINTIC CONSOLIDATED MINING COMPANY.

This company has one of the largest and most valuable areas of territory in its immediate section. The group of claims is about 8,100 feet long, by 1,800 feet wide. These claims were located by practical and experienced miners, and are situated about three miles north of Eureka, Utah, in the heart of the mineral zone, and are said to be upon the same belt as the Bullion-Beck, the Centennial-Eureka, Keystone and other rich mines, the outcrop being easily traceable from Eureka across the mountains. These claims are by experts and surveyors said to be at the junction of the Eureka and the great Mercur belts. The mines south and north of this company have yielded many millions, and, as shown elsewhere, their yield is rapidly increasing. The Tiernan mine, three miles north, has a body of ore of the same character as the Bullion-Beck, which would seem conclusively to demonstrate that, with proper development, the North Tintic Consolidated will produce the same ore, the black quartz found in the company's shaft on the Buckhorn being identical with that in the Bullion-Beck. Some two and a half miles northwest is the Hot

Stuff mine, with a body of shipping ore which is being extensively developed. Immediately adjoin-ing on the south is the Farragut group, with a body of ore 62 feet wide. Adjoining on the east is the North Eureka, developing with fine showings of gold and silver. The Buckhorn shaft, which is about 70 feet deep, shows a well-defined vein of black quartz and mineralized talc, which give assays of from \$3 to \$27 in gold and silver, some

higher assays being reported.

Mineral croppings abound throughout the properties of the North Tintic Consolidated, and the surface showings are regarded by many as even more promising than they were at Eureka. Wherever the veins have been penetrated in the different places over this property, the appearances improve rapidly, and the best mining men now concur in the opinion that it is but a question of reasonable depth when this company will develop a large and rich body of ore, which seems to be the only necessity in many places in that district. The company is selling a limited amount of treasury stock for development purposes. Information can be obtained from L. M. Armstrong, attorney-at-Law, Salt Lake City, or John F. Waters, attorney-atlaw, Chicago, Ill.

THE HOTEL MAMMOTH.

At Mammoth is one of the best hotels in the State. It is run by Mrs. Dix, who has one of the best tables, cleanest and cosiest little hotels to be found in the State. The rates are \$2.50 per day, and those that have stopped there once will stop there again.

DAGMAR MINING AND MILLING CO.

The mines of this company are situated in Tintic Mining district. The claims of this company are located about 3000 feet northwest of the great Bullion-Beck, and some 2000 feet from the Gemini



S. R. MARKS

or Keystone group, between 5000 and 6000 feet from the Centennial Eureka, and Eureka They Hill mines. are in the same lime formation. For depth attained, the Dagmar has made a very superior showing, few mines in the district presenting better indications for the work done, ore being encountered at a depth of fifteen feet. This increased with depth while it has also improved in character. and there are many

who believe it destined to be one of Eureka's big properties. A small amount of treasury stock is offered for sale, the proceeds from which are used to develop the property. The company is capitalized for \$500,000 divided into 100,000 shares of a par value of \$5 each. One fourth the total capitalization has



MR. TIM DRISCOLL, A VETERAN, UTAH MINER.

been set aside for sale to develop the property. S. R. Marks is president; Ed. T. Studness, vice-president, and E. Q. Knowlton is secretary and treasurer. The company's offices are 302 State Street.

Mr. Tim J. Driscoll.

Tim J. Driscoll, whose picture is given elsewhere, has been mining since 1851 and has mined all over the west; on the American River, and Yuba River. In 1857 he was on the Pon D'Oreille river Oregon, near the Trail Creek district now booming. He fitted out the party that struck Alder Gulch. With Capt. Ankenney he laid out the town of Lewiston and is now in Mercur, State Line and elsewhere in Utah.



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alt Lake City, Utah.



JOHN A. KIRBY, SUPERINTENDENT BULLION-BECK MINING CO.

Big Cottonwood Mining District.

This is one of the oldest districts in the state, and is located in Salt Lake County. Work on many claims has been prosecuted for years, yet there has been little if any excitement in recent times, save in the early spring of 1895, when it was believed great bodies of gold ore were to be opened up at the mouth of Little Cottonwood Canyon.

W. F. James is operating the Maxwell in Big Cottonwood, and the Goodspeed group of claims has also been worked for a long time. The ores from these contain silver and lead, and resemble

Park City products.

Most attention is now, however, devoted to looking for gold. In the New State, one of the first gold locations near the mouth of Little Cottonwood canyon some 600 feet of development work has been done, and a 10-inch vein carrying about four ounces of gold ore has been opened. The mine is already a shipping proposition, though the ore body is not as large as could be desired. A tunnel is now being driven into the New State, so as to tap the ore at a much lower depth.

The Dipper Mining Company has several claims in which a 2-foot vein of 4oz. gold ore is exposed. This property is also shipping, and looks as though it were destined to be one of the great mines of the district. The Gold Dollar has a large body of low grade ore, which runs from \$6 to \$8 to the

ton; but it is said to be very refractory.

Other claims on which more or less work is being done are in the same locality.

THE WANTUNKA.

The Cottonwoods, also, seem to be taking on a new lease of life. Beside the strikes of gold reported there has also been an important silver find. The Wantunka, found in '95 and owned by Felix J. Stark and Alex Mitchell embraces a group of five full claims from which some phenomenal assays have been had; 30 per cent lead, \$14 in gold and 500 ounces in silver. A tunnel 60 feet into the claim, by which a depth of 70 feet was gained, exposes a vein of carbonate ores 3½ feet in width, all of which assays well, portions of which yield as above stated. The ore is being sacked and big results are expected by the owners.

The New Sensation mine is an old discovery with new work. On part of the claims is a 200 foot tunnel in the face of which is a 12 foot breast of low grade, lead and silver. From the other side of the ridge a lower tunnel has recently been driven in a distance of 500 feet to tap the above mentioned vein at a still greater depth of 275 feet. They are now cross cutting to strike the vein. The property is controlled by S. S. Phippen, A. Brim, Henry W. Lawrence, W. T. Dinwoodey and others.

THE SILVER HOTEL

___JOHN LEYSHON, Prop.—

A New, First-Class Hotel just completed in Silver City, One-half Block from L. E. Riter & Co.'s General Merchandising Store.

EVERYTHING NEW, CLEAN AND ABSOLUTELY FIRST-CLASS.

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Marysuale Mining District.

The direct line of travel to the Marysvale mining district is via the Rio Grande Western Railway. From Salt Lake to Thistle Junction is 64 miles, and from there to Salina is 87 miles, a distance of 151 miles entire.

Marysvale is fifty miles south of Salina. It has as yet but about 500 people in the town proper, though the near future will witness a rapid growth. It is situated in the valley and at the the base of old Mt. Baldy. High mountains tower above it on the west. It is but fifteen miles from there to the Sevier mine, and the probabilities are that with the advent of the road, it will be a shipping and distributing point for all the Gold Mountain mining district. It is in Piute County, and Junction City, seventeen miles south, is the county seat. Some gold was found in the Marysvale district thirty years ago, but it was not until the '80s that anything was done in the way of mining, and even then mining was carried on under such disadvantages that none save ore of high values could be profitably mined, as the nearest point of shipment on the roailroad was over one hundred miles distant, and roads were not then of the best.

There are at present in that district two hundred claims, upon which the assessment work has been done, and a number of producing mines that go far towards awakening real live interest in the

mining world.

Colonel Dodge and Traffic Manager Babcock are firm believers in adding to and building up the

local business of the "Utah road," and they have been long convinced that Marysvale is an objective point, which will in time afford ample returns for the money so expended. There has been built and is now in operation thirty four miles of the new line, and work is being steadily pushed forward at a rate that will soon permit direct rail communication with Marysvale and the outside world. When that day comes all else will be easy, and the future of that district is assured.

Marysvale and the Baldy country, together with contiguous districts, at this writing are in a most promising condition. The Dalton continues to be a noted mine, and the Sunrise, Sunset, Sundown and Morning Star, near it, are developing finely.

THE CRYSTAL.

The property on which the greatest amount of work is at present being done belongs to the Crystal Gold and Silver Mining Co. Some twenty men are at work and three tunnels are being run on the claims. The Crystal is an old discovery on which work ceased about 12 years ago until lately. The three tunnels will tap the same ore body at different points. The north tunnel is already in on the vein which averages about 4 feet in width. The south tunnel will be pushed further, and the middle tunnel some 250 feet before the ore will be reached. The ore runs about 35 per cent. lead, 40 oz. in silver and \$4 in gold to the ton. The Company owns about thirty full claims and is capitalized for 100,000 shares of a par value of \$10 each. Geo.

M. Scott is president and treasurer; J. E. Gallagher, vice-president, and H. S. Rumfield, secretary. These with E. M. Burns and B. B. Van Dusen are the directors. Mr. Tom Ferguson is superintending the work. While the mine could be made a steady shipper no ore is being sent out because of the low price of lead.

The Webster, owned by a strong Salt Lake and . California syndicate has a tunnel in 1500 feet and lately exposed five feet of high grade galena ore on its footwall. The quartz ledge at this point is some 60 feet thick. The Webster promises to be a great property. L. U. Colbath is managing the property.

The Wedge, situated on Brigham Peak is a recent discovery that is showing up well in silver and gold. Samples show values to run from \$12 to \$250 in gold and from 25 to 75 oz. in silver.

The Clyde is also being developed under direction of Mr. Isaac Jennings, of Salt Lake City, and

is making more than a satisfactory showing.

The Dalton is a well-known property of which much has been and still is expected. It is now under lease to Mr. Dan. Ferguson and others, which fact shows that mining men have confidence in it.

In the same district is the noted Sevier Mine which Mr. Chas. Lammersdorf controls and which he is developing persistently and with the profound-

est confidence.

New life has entered the whole of the Marysvale mining interests by reason of the advent of the Rio Grande, soon to be within 4 miles of the town of Marysvale. It means the opening anew of an old established, yet non-productive district because the distance from the railroad made the profitable operation of the mines impossible. Now, however, capital is going in, development work is in progress and the discoveries named are already giving assurance of a great future for that district.

Uintah County.

In this county, and more especially in that part of it covered by the Reservation, great bodies of minerals are known to exist. Specimens of gold ores carrying thousands of dollars to the ton, and found in large ledges are from time to time brought in. The Indians occupying the reservation call the ore "money-stone," showing that the great value of the ore is recognized by the Indians themselves. In this county great bodies of copper ore have been developed, while the coal and asphalt deposits - the latter the greatest and purest in the world-have long been known to exist. The altitude of the country, its rugged character, and its distance from railroads, has made it impossible for the general public to know much about it, but as the reservation will be opened soon, and the general public being given information by the newspapers, it is only a matter of days or weeks until this district will be as widely known for its wealth as any other district in the Inter-mountain country.

Sanitarium.

The springs supplying the Sanitarium baths referred to has a daily flow of 500,000 gallons of water. It contains a swimming pool (for men only) 56 by 75 feet, and from 3 to 7 feet deep; a swimming pool, 56 by 65 feet, for both sexes, with bathing suits; 12 private pools, of ample proportions, 26 private bath-rooms with the best porcelain tubs, and a well-appointed room for steam baths.

Surrounding the large pools are 200 commodious dressing-rooms, and adjacent to the pools are billiard parlors, ladies' parlors and retiring-rooms, reading and smoking-rooms.

The efficacy of these waters has been demonstrated in cases of rheumatism, neuralgia, diabetes, Bright's disease, gravel, lead poisoning, catarrh, dysentery, gout, indigestion, nervous prostration and incipient lung troubles. These waters can be used internally, and are particularly beneficial in all diseases based on uric acid diathesis.

For further information, and testimonials from people who have been restored to health by these waters, write to the Salt Lake Hot Springs Sanitarium Company, 50 and 52 West Third South Street, Salt Lake City, Utah.

Dr. Henry O. Macry of Boston, writing of these springs says: "I like your place very much. * *

* I have visited most of the celebrated springs of Europe and America. Few equal and none surpass

your own."

Toogle County. Bencroft Library

The Northern Light Mining and Milling COMPANY owns six patented and three unpatented claims on Lion Hill, in Tooele County, over the hill and northwest of the famous gold district of Camp Floyd. While the corporation is new, the mining claims were worked years ago and thousands of tons of ore extracted at a profit. But the fall in the price of silver and profitless litigation caused a cessation of work. By the transfer to the new company all litigation was estopped and the old workings reopened and tests made to show the assay value and the size of the ore bodies carrying gold, which had long been known to exist, but which could not be worked profitably by any known system in earlier days. It was shown that the gold ore bodies existed on a scale that would rival the great Mercur mines, while the assays showed the ore to contain a higher percentage of gold than averaged in the Mercur mines. The ore also differed from that abounding in Mercur in that it disclosed the presence of something like 18 oz. of silver, as well as \$17 in gold to the ton, or a little over 1 oz. of silver for each dollar of gold. Apart from some ores found in the Cannon shaft, silver has not hitherto been found among the ores now being worked in Mercur. Then the ore was tested both in Utah and in Colorado to ascertain if the gold could be extracted by the cyanide process and both tests were eminently successful. The stock has been bought up closely, because the Northern Light is looked upon as destined to be one of the

greatest gold producers in the west, so vast are its gold bearing bodies, so high the percentage of gold and so inexpensive the cost of production and reduction. A tunnel driven into the property has tapped the great bodies 1,300 feet lower, and the character of ore is the same, while it has been demonstrated that the Northern Light is perhaps the best ore for cyanide workings so far exposed. Tests have demonstrated that 40 per cent of the gold values can be extracted by the application of hot water alone.

Ophir, Stockton, Dry Canyon.

It is more than likely that the recent developments in the Northern Light will do much to cause renewed activity in these old camps. The Ophir Hill has been a steady producer for years, its chief owners being Hon. Allan G. Campbell and Col. E. A. Wall, the property, however, now being managed

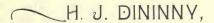
by Mr. W. G. Nebeker.

In days gone by the camps yielded great bodies of ore, generally of low value. The drop in silver and low price of lead have successfully deterred continued prosperity. Now, however, that gold ores easily yielding to the caynide process, and large in bodies, have been uncovered in the Northern Light, and because of its proximity to the Mercur fields, it is more than likely that gold ores will be sought for and such discoveries made as will repeople the district with an energetic population. Recently prospectors—Messrs. Austin and Willis—have invaded the mountains north of Stockton and west

of Bingham, on the Tooele valley side and within five miles of that city, and have located upon some most promising ledges, which they are now working on.

Blue Mountains District.

This district is in San Juan County, in the extreme southwestern part of the state. The whole country is rich in minerals, but owing to its distance from railroad connection and its rugged character, the country has been but slightly prospected. Most work has so far been done on the Gold Queen, on which a 10-stamp mill (with a capacity for 20-stamps) is at the present time being erected, together with a tramway, at a cost of some \$15,000. The company has already spent about \$10,000 in development work alone. The ore is gold, ranging from \$5 to \$150 to the ton, and will average about \$15. The vein is not very regular, but there is already on the dump enough to justify the erection of the mill now being put up.



ATTORNEY OF COUNSELOR AT LAW.



Mining and General Practice.

85 COMMERCIAL BLOCK. SALT LAKE CITY, UTAH.

Hardscrabble.

The Hardscrabble district has for many years been a small producer, worked only in a desultory way. During 1896 considerable work has been done on the Fowler Brothers claims. During the latter part of August and September a new mill was built on the Morgan, and twenty men are at work. About \$30,000 has been spent in development, there now being between two and three thousand feet of tunnels exposing vast bodies of ore that run as high as \$600 in gold, silver, cobalt and platinum. The ore is free-milling, and the Hardscrabble and Morgan will be great producers once the mill is put in operation. All the other older claims in the district have been more or less developed during the past year.

state Cine District.

The State Line district, in Iron County, has developed several very good mining prospects. Some very rich gold and silver ore has been found, but up to date not sufficiently developed to establish the permanency of the veins. Silver is found in porphyry and gold in trachyte. The Offer, Burro, Creole and other claims show immense values in the ore down as far as 100 feet on the veins. Some of the ore runs from 40 ounces to \$600 in silver, and from \$40 to \$800 in gold. By the time this book is issued from the press a stamp mill will likely be in operation. There are about 200 people in the camp, and the future prospects are flattering.

Beck's hot Springs.

Among the multitudinous enterprises fostered, promulgated and pushed to success by Mr. John Beck, are the hot sulphur springs which bear his name. Not by any means least of his many ventures to utilize nature's handiwork for the general welfare and benefit of Utahnians and the tourist, are these waters which are used for great good to thousands annually. In his plans as now in vogue at Beck's Hot Springs, the successful proprietor has builded a resort that is daily growing in fame, and will soon fulfil the original ideas of the projector.

The water boils up from beneath a huge rock and forms a transparent pool of a bluish shade. From this source the water is piped for a short distance to the great bathing pavilions wherein are immense swimming pools for either sex or for both. Beside these pools are a large number of private pools and bath tubs, all using the same wonderful waters. It is a sanitarium and natatorium unsurpassed by any in the country. All the conveniences of a first-class resort are present, and the corps of assistants are experienced, courteous and ably assist the management in successful operation.

The waters are known better for their curative properties than their exhilerating effects for bathing. The most eminent physicians pronounce these waters a cure for rheumatism, Bright's disease, stomach complaints, skin diseases, lead poisoning, etc. They are used internally as well as externally. Three lines of railway pass the main entrance of Beck's

Hot Springs.

Utah Mineral Springs.

The mineral springs of Utah are destined to prove an important factor in the future development of the new State. There are many and they are located at points widely apart. In the confines of Salt Lake City are several sulphur springs—the White Sulphur Springs, Beck's Hot Springs, and the spring that supplies water for the Sanitarium carried through pipes and delivered to extensive and modernly equipped baths in the very heart of the city and within a few minutes' walk of all the hotels. The water of all these springs is warm, the temperature, however, varying from a point at which it is too hot to be endured, to one that leaves the water a little above lukewarm. They are excellent for skin diseases, for rheumatic complaints and for relief from lead poisoning—an affliction of frequent occurrence among miners employed in the lead mines of Utah. Some remarkable cures have been effected by bathing in the waters. They are also valuable for internal use. The Wasatka Mineral Water Company supplies a table water from one of these springs of such remarkably beneficial effect that it has sprung into prominence as a prominent mineral water, delightful to the palate, devoid of offensive odor and a most admirable stomach corrective. As already stated, all these waters -while differing in character, there being three springs—are commended by physicians, and can be had for the taking in a natural state.

In many parts of the state are salt springs, while in Millard County is an ice spring—ice being

found under the water the year round. In Wasatch County are what are known as the mud baths, sought by many for the curative effects on bathers. These are warm springs of water bubbling up and largely filled with a natural earth.

Just over the line in Idaho are the famous Soda Springs, charged by nature with carbonic acid gas.

In fact, throughout the whole of Utah, springs varying in the minerals contained, but all possessed of singular medicinal properties for differing complaints, are to be found.

Clarence Jones, J. H. Ferris and C. L. Dignowity own the Free Bullion and Free Bullion Nos. 1 and 2, which lie nine miles up City Creek Canyon, on the east slope from the Red Bird. The ore carries 70 per cent lead, 16 ounces in silver, and averages \$2.65 in gold. A 100 foot tunnel is being run to cross cut the vein. Clarence Iones has located the Texas just north of these claims, and is pushing the work of development.

W. S. Doung.

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Early Smelters and Fluxes.

The first iron ore mined for fluxing purposes came from West Mountain, near Cedar Fort, from a canyon which now supplies the Cedar Fort population with water, and which is near the present Peepstone district. Hon. T. R. Cutler, and others of Lehi, owned the claim and hauled the ores by team to the old smelter of Buell and Bateman, at Cottonwood. The ore brought \$40 a ton in those days, but it was claimed by the smelter men that the gold and silver in the ores almost paid the \$40. Boulders of iron ranging as high as 80 per cent in iron were frequently found. The claim was patented, and is still owned by the parties in interest.

Major Wilkes also ran a smelter at the mouth of American Fork Canyon in those days, and paid \$30 per ton for the fluxing ores delivered at American Fork, from which point it was carried up the canyon by the railroad then operating there and since abandoned. When the smelter closed thousands of tons were left on hand, and it may be seen to this day in piles along the road where it had been dumped.

With the advent of the railroad into Tintic the mine was closed, as teams could not compete

with steam.

The claim has never again been worked for gold, and its proximity to Mercur and Bingham, and the claims of Buell and Bateman might seem to warrant a thorough examination of the old and abandoned mine.









